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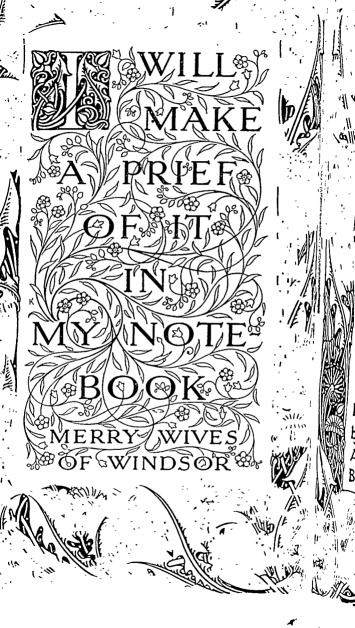
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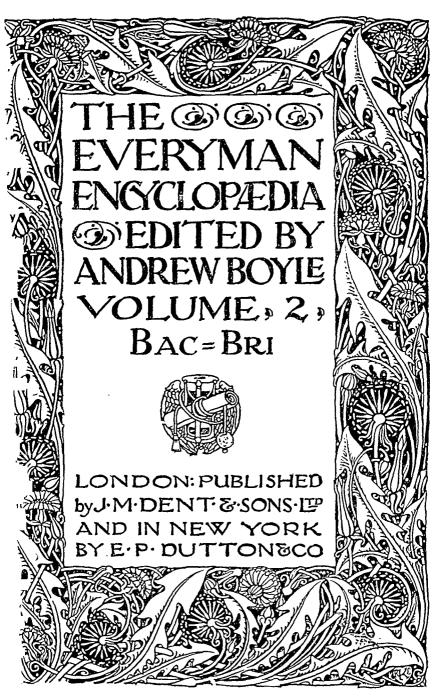
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LIST OF ABBREVIATIONS

in.. inches.

BC., ACTES. A.D., after Christ. agric., agricultural. alt., altitude. ambas., ambassador. anct., ancient. ann., annual. arron., arrondissement. A .- S., Anglo-Suxon. A.V., Authorised Version. b., born. B.C., before Christ. Biog. Dict., Biographical Dictionary. bor., borough. bp., birthplace. C., Centigrade. c. (circa), about. cap., capital. cf., compare. co., county. com., commune. cub: ft., cubic feet. d., died. Dan., Danish. dept., department. dist., district. div., division. E., cast: castern. ocolos., ecclesiastical. ed., edition; edited. e.g., for example. Ency. Brit., Encyclopædia Britannica. Eng., English. estab., established. et seq., and the following. F., Fahrenheit. fl., flourished. fort. tn., fortified town. Fr., French. ft., feet. Ger.. German. Gk., Greek. gov., government.

Hob., Hebrew.

Hist., History.

i.e., that is.

inhab., inhabitants. Is., island. -s. It .. Italian. Jour., journal. Lat., Latin. lat., latitudo. 1. b., left bank. lit., literally. long.. longitude. m.. miles. Mag., Magazine. manuf., manufacture. mrkt, tn., market-town. Mt., mts., mount, mountain. -s. N., north: northern. N.T., New Testament. O.T., Old Testament. par., parish. parl., parliamentary. pop., population. prin., principal. Proc. Royal Geog. Soc., Proceedings of the Royal Geographical Society. prov., province. pub., published. q.v., which see. R., riv., river. r. b., right bank. Rom., Roman. R.V., Revised Version. S., south; southern. sev., several. Sp., Spanish. sp. gr., specific gravity. sq. m., square miles. temp., temperature. ter., territory. tn., town. trans.. translated. trib., tributary. U.S.A., United States of America. vil., village. vol., volume. W., west; western. yds., yards. vii

THE ENCYCLOPÆDIA

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Backhuysen, Ludolph (1631-1708), Dutch painter, born at Emden, Han-His masters were Everdingen and Dubbels. He is famous as a painter of seascapes, which marked by their vivid realism.

Back-lash, the jarring reaction when the motion of a cogwheel or set of connected wheels is altered

when sudden pressure is applied.

Backnang, a tn. of Würtemberg,
Germany, on a trib. of the Neckar,
It has tanneries, and manufs. boots
and cloth. Pop. 7500.

Backwardation, a term used on the Stock Exchange for a sum of money paid by a seller of stock to the buyer in order that he may delay its delivery until the following account.

Backwell, Edward (d. 1683), a London goldsmith and banker at Unicorn, Lombard Street, one of the founders of the system of bank-notes. financial dealings with Oliver Cromwell, Charles II., and the queen-mether, most of the nobility of the day, and with the E. India Company and sev. leading city firms. In 1662 he was sent to Paris on the matter of the sale of Dunkirk, and was employed on many secret services between Charles II. and Louis of France.

prov. of Bac-Ninh, is in Tong-king, about 16 m. N.E. of Hanoi. It was captured by the Chinese in 1884; pop. 8000.

Bacolod, or Bacolot, former cap. of Negros, Philippine Is., now of the prov. of W. Negros. It is noted for

its fishing; pop. 12,000.

Bacolor, a tn. of the prov. of Pampanga in the is. of Luzon, Philippine Is., situated 40 m. N.W. of Manila. The is. grows spice, and has a pop. of about 10,000.

Bacon, see PORK.

Bacon, a tn. on the W. coast of the Camarines Isthmus, Luzon, Philip-

diplomatist, elder son of Sir Nicholas Trinity College, Cambridge, his tutor Woman.'

being John Whitgift, afterwards archbishop of Canterbury; in 1576 he was admitted with his brother ancients' of Gray's Inn. In 1579 he undertook a long continental tour, when he made the acquaintance of Montaigne, the essayist, Danæus, an eminent Protestant theologian, and many of the leaders of the court of Henry of Navarre. He returned to England in very bad health in 1591. In 1592-3 he was returned to parliament as member of Wallingford. In 1593 he entered the service of the Earl of Essex, and undertook to keep him posted in foreign information, and as his private 'Under-Secretary of State for Foreign Affairs,' was in constant communication with numer-Many of Bacon's ous foreign ambas. letters remain in manuscript, much of which is preserved in Lambeth Palace In 1597 he was returned to parliament as member for Oxford. See Dr. Abbot's Bacon and Esser, 1877; Todd's Cat. Lambeth MSS.

Bacon, Delia (1811-59), an American authoress, sister of Leonard B., born at Tallmadge, Ohio; a schoolmistress, and a lecturer in history and literature at classes for women. Wrote sev. stories: Tales of the Puritans, 1831; Bride of Fort Edward, 1839. Though the idea did not originate with her, she was one of the earliest and most enthusiastic supportant of the theory that Challenger porters of the theory that Shakespeare was not the writer of the plays called by his name. She came to England to study the question, and became a friend of Thomas Carlyle and Nathaniel Hawthorne. In 1857 she pub. Philosophy of the Plays of Shakespeare Unfolded, in which she expounded her theory that the socalled Shakespeare plays were written by Francis Bacon, Edmund Spenser, Walter Raleigh, and others in order to set forth a philosophy which, nevertheless, they did not care to own publicly. Her mind became plue Is., in a fertile dist.; pop. 13,000. hinged, and she returned to America, Bacon, Anthony (1558-1601), a and died at Hartford (Conn.). Hawthorne recounted his friendship with B., and brother of the great Francis her in a chapter of Our Old Home, B. In 1573 he went into residence at (1863), 'Recollections of a Gifted

Bacon, Francis (1561-1626), Lord, queen and Essex; he evidently did Verulam and Viscount St. Albans, attempt to mediate honestly between commonly but inaccurately called Lord B.; lord chancellor and philosopher, was born at York House in the Strand, London, Jan. 22. His father was Lord Keeper Nicholas B., who ranks high among great Elizabothan statesmen, and who held the scals of office for twenty years. His mother was Ann, second daughter of Sir Anthony Cooke, a well educated woman and a zealous Calyinist. In 1573 Francis entered Trinity College, Cambridge, and in 1575 Grav's Inn.



FRANCIS BACON

It is said that while he was still at college he determined upon pursuing that course which should bring about the new philosophy. It is said that he himself regarded his profession as a means to this end. However, the death of his father in 1580 left him with comparatively little influence, and so he was dependent upon patron-Henceforth his life must be considered in two aspects: the political career and the literary, both so distinct and contradictory that, to a casual observer, it seems that Pope's saving is suitable to him. 'The saying is suitable to him. brightest, wisest, meanest of mankind.

After failing to obtain help from his uncle, Lord Burleigh, he was helped very considerably by the Earl of Essex, whose unfortunate career in Ireland terminated too quickly to allow of his giving B. very much help.

them. But this having failed, what is certain is that he offered himself as counsel for the prosecution against counsel for the prosecution against Essex. He himself said in his Apology that he did so in the hope of helping his unfortunate patron. What was more generally believed was that he saw that he had gone too far, that he had offended the queen, that the fall of Essex meant his own ruin, and so he altered his plans accordingly. He made little attempt to save his friend. Moreover, when the queen wished to vindicate her action, it was B. who wrote A Declaration of the Practices and Treasons attempted and committed by Robert, Earl of Essex, and later apologised by saying that the maintenance of the state was more important than the ties of friendship. In the last years of Elizabeth's reign B. tried to act the part of mediator between queen and With the accession of James people. he found his chances of promotion increased. He was knighted on coronation day, and in the same year married Alice, daughter of Alderman In 1604 he was made a Barnham. king's counsel, and given a pension of sing's counsel, and given a pension of £60 a year. In 1607 he became Solicitor-General, and in 1612 At-torney-General. He exerted himself to bring about the union of England and Scotland, and at the same time busied himself in writing. His ser-vility during this period is usually illustrated from the cases of St. John and Reacham. In 1616 R. was the and Reacham. In 1616 B. was the prosecuting counsel in the Overburg murder case, and next year secured the dismissal of Coke, his rival, from the King's Bench. He next attached himself to the new favourite, Buckingham, who at first did his best by using his influence on behalf of B. In 1616 B. became a Privy Councillor, and in 1617 was appointed Keeper of the Great Seal, and was raised to the peerage as Lord Verulam. The years in which he held office Macaulay declares among the darkest and most shameful in our history. He allowed Buckingham to interfere in his deci-Buckingham to interfere in his decisions in the Court of Chancery, and at one time actually cancelled his judgment of a case and ordered it to be tried again in response to a peremptory letter from Buckingham. He acquiesced in the execution of Raleigh, and in the project of a Spanish marriage. A great deal of the maladministration of the time must be ascribed to the weakness of must be ascribed to the weakness of the king and the power of the favourite. But it is impossible to exonerate the lord keeper. At this Now occurs the period of which the exonerate the lord keeper. At this most capital has been made by B.'s time the practice of granting monoenemies. He had to manage the police as rewards was at its height.

powers that they could over-ride an interestore B. was simply used as a law and order. But B., when he was sapegoat cannot be admitted for a asked to interfere, practically decided in moment if we consider B.'s own view in favour of extending these powers. of the matter. True, at first he However, his fall was close at hand. The period of the Addled Parliament indignation. But later, when he of 1614 had been succeeded years in which the nation was governed absolutely by the Crown. In 1621 want of money forced the king to convoke another parliament. If he and his ministers had understood same thing as fees. He never atthet temper of the people it is possible that they would not have done so. Immediately parliament assembled, Immediately parliament assembled, In his final 'confession and submission' he goes over all the charges, and, with the exception of a few unimportant denials, declares himself to defend the charges, and, with the exception of a few unimportant denials, declares himself of the confession and submission' he goes over all the charges, and, with the exception of a few unimportant denials, declares himself of the confession and submission' he goes over all the charges, and, with the exception of a few unimportant denials, declares himself of the confession and submission' he goes over all the charges, and, with the exception of a few unimportant denials, declares himself of the confession and submission' he goes over all the charges, and, with the exception of a few unimportant denials, declares himself of the confession and submission' he goes over all the charges, and with the exception of a few unimportant denials, declares himself of the confession and submission's heart of the confession and submission's heart of the confession and submission and The period of the Addled Parliament indignation. But later, when he of 1614 had been succeeded by seven found himself deserted by his powerhad so oppressed and robbed the people. Buckingham began to fear for himself, and so proposed a plan by which certain people were to be sacrificed to the house to save others. Sir Giles Mompesson and Sir Francis Mitchell were first given over to im-peachment. It was not long before B. understood that he, too, was to be abandoned. The Commons, led by B.'s enemy, Coke, appointed a committee to enquire into the state of the courts of justice. On March 15, 1621, the chairman reported that great abuses had been discovered. The person, said he, against whom these things are alleged is no less than the lord chancellor, a man so endued with all parts, both of nature and of art, that I will say no more of him, being not able to say enough. There were twenty-three specific charges which were put before the Lords temperately enough. The evidence was so clear and irrefutable that the lord keeper's friends could only ask for suspension of judgment. B. him-self seems to have realised the hope-lessness of his position. He became ill, and from a letter written at the time he seems to have had no wish to B. himrecover. The inquiry was proceeding magnificence was as great as ever. when the adjournment of parliament, This carelessness in money matters

Patentees were armed with such great of the law officers of the day, and that powers that they could over-ride all therefore B. was simply used as a important denials, declares himself guilty. 'I do plainly and ingenu-ously confess that I am guilty of corruption, and do renounce all defence and put myself upon the grace and mercy of your lordships;' and again, at the end, when he had stated all he could in favour of himself, 'I do now again confess that, in the points charged upon me, though they should be taken as I have declared them, there is a great deal of corruption and neglect, for which I am heartily sorry, and submit myself to the judgment, grace, and mercy of this court. For extenuation I will use none concerning the matter themselves. The most remarkable comment on his case and on the state of the courts in England is his own statement, made some years later, 'I was the justest judge that was in England these fifty years; but it was the justest judgment that hath been pronounced these two hundred years.' No judges could have been more favourable to him than those who tried him. He was spared all public humiliation as far as possible. After 1624 he was at full liberty to return to court, and even to take his seat in the Lords, had he desired to do so. He received a pension of £1200 from the gov., and his gave him a short respite. On the remay explain some of the passages in assembly of the houses B. admitted his confession; it is certain that it assembly of the houses B. admitted practically everything, and renounced all defence. He was condemned to brought him into difficulties during all defence. He was condemned to brought him into difficulties during pay a fine of £40,000, and to be imprisoned during the king's pleasure. He was removed from his offices, declared incapable of holding any other, and banished from court. The sentence was undoubtedly severe, but probably none of the judges thought study as was not worthy of such a it would be carried out in its entirety. Student. In 1622 he completed his Tower for two days as soon as his litely of King Henry VII., and in 1623 he alth improved, but at the beginning of 1624 he received a full pardon. The argument that such bribes and selection of jests in the of 1624 he received a full pardon. Sev. political tracts and valuable fees were the customary emoluments written were the product of this part of his life. In 1626, while travelling in his coach near Highgate, he caught a chill while performing an experiment. He considered that excessive cold might serve to prevent animal tissues from putrefaction. On this particular day he alighted from his particular day he alighted from his coach to stuff a fowl with snow in order to test his theory. Almost immediately be became ill and was taken to the Earl of Arundel's house.

Here he died on Easter Day.

It is by the Essays that B, is best known to the general reader. First pub. in 1598 they appeared as ten in number; later, as successive eds. were issued, they became more; in 1612 they were nearly four times as many, and in 1625, the last ed. pub. during his lifetime, nearly six times as many, These Essays differ greatly from his They are simply obserlater works. vations he had made, and rules he had vations he had made, and rules he had found to be true, in his way through life, and are set down unceremoniously. There is hardly any attempt after 'style;' in few is there any deliberate seeking after order. In 1598 they read almost like notes, and although they are recast later the same ruggedness of outline remains. what is considered his greater work he had a different manner of writing. As far as subject matter, truth, and beauty are concerned he rarely surbeauty are concerned he rarely surpassed the Essays, but his style was becoming constantly richer, softer, and more melodious. In 1605 he dedicated to the king Two Books of the Proficience and Advancement of Learning, Divine and Human. In 1623 he expounded this into the Lat. treatise, in nine books, entitled De Augmentis Scientiarum. In 1610 he gave to the world his Wisdom of the

Ancients (De Sapientia Veterum), a fanciful interpretation of old classical mythology, but none the less a brilliant piece of work. In 1620, just before his fall, appeared what is undoubtedly the greatest of his works, the two books of his Novum Organum Scientarum, or new method of scientific discovery, in which he announced what he thought to be a previously unthought of method of questioning nature, and extorting her secrets from her. This work was to be the second part of a great scheme, 'Instauratio Magna,' or the Great Restoration, De Augmentis being the first, the whole to be completed in six books. In 1622 he pub. the History of the Reign of King Henry VII., and, as before stated, his marvellous industry continued to the end. Of these books, the Advancement must be considered as a call to a great cause. It is evidently a hurried production, and is not well arranged. Yet it is a

work whose purpose was immense, whose influence is even now at work. It was the first of a long line of books, the purpose of which was to teach people the use of knowledge, how, why, and what to know. B. considered it merely a beginning; the De Augmentis was a development of it, and in his later Lat. works he sought to go farther in the road he pointed out first of all. In the Novum Organum he reverted to the form of aphorisms. He worked twelve years on this book, and carefully weighed every word. It developed into a war on the world of science as it was then; and declared that all knowledge must be begun again, by a new, and as he thought, infallible method. The first book simply prepares; in the second book, with the eleventh aphorism, he declares his own method. It is usually said, mistakenly, that he rediscovered the method of induction as opposed to that of deduction. method of reasoning then in vogue had been to accumulate instances without following any rule of selection; that is, a theory was formed, and then was supposed to be proved if instances could be accumulated which agreed with the theory. B. on the other hand, pointed out the advantages of the experimental method. Given an effect, work backwards to the cause or causes; experiment then to discover if the cause produces the effect. B. elaborated this method of effect. B. elaborated this method of exclusions, but, as Macaulay points out, it is ridiculous to say that le discovered the method of induction. Intrinsically, his method was valuable. He saw that the real object of science should be to find out causes, or the force of causation. He has received much credit for this. The amazing discoveries of modern science are, not without reason perhaps, assigned to his awakening. But when we come to examine details we find that the most surprising divergence of opinion exists among competent judges. Some of his most ardent admirers have come to the conclusion that as an instrument and real method of work B.'s plan was a failure. B. claimed that his method was infallible and mechanical, and that it would reduce all minds to the same level in the task of obtaining knowledge. To have made such an assertion shows that he could never have understood the possibilities of the human mind. Again, his explanation of the science of induction is not clear enough to be satisfied. His own conclusions are factory. either unverified or merely negative.

natural sciences. Finally, his method alone, still presuming that William was altogether too mechanical.

was the only way to knowledge. He peculiarly applicable to B. stored up . . .; in the fourth examples are to be given of its operation . .; the fifth is to contain what B. had accomplished in natural philosophy without the aid of his method . . ; the sixth will set forth . . . the results of the applicaforth . . . the results of the applica-tion of the new method to all the phenomena of the universe. Doubtless, to the ordinary reader,

the most interesting question in regard to B. is that which assigns to him the authorship of Shakespeare's plays, together with that of many other works of the period. The war of Shakespearians v. Baconians has produced much writing and not a little acrimony. For years researches have been carried on in order to clear that the calculations of Shakespearing of Shakes up the so-called mystery of Shakespeare. The arguments of the Ba-

as altogether too mechanical. Shakespeare was not the true author, Yet with all this he has a pre-can be credited the production of Yet with all this he has a pre- can be cremed the production of eminent place in the history of science, those marvellous plays. Countless The principles on which he worked passages in them may be paralleled were the only true ones, and he pro- in his own writings. Moreover, the pounded them systematically and sonnets, the 'ker with which Shake-earnestly. He showed that intellispeare unlocked his heart,' and which gent, patient examination of things open to such a shadowy portal, are But it is wished to make a new world, happier upon negative evidence that most than the old in the possession and stress is laid. We have only five pursuit of knowing. He was keenly specimens of the handwriting of alive to the needs and pains of human Shakespeare, and taking the signaalive to the needs and pains of human Shakespeare, and taking the signalife, and thought it no shame to use ture, which occurs in all, we see that knowledge to alleviate them, in it is by no means clear, and certainly charity to man, and anxiety to renot what we would call an educated lieve his sorrows and necessities . . . hand. The evidence is far from being for this should men study to be nor conclusive. Contain orthogonal for this should men study to be per-conclusive. Certain enthusiastic sup-fect in. Certain it is that his con-porters of the Baconian theory pin clusions were often vague and untrue; their faith to cyphers obtained by that he himself did not know the poring over the first folio of Shake-immensity of what he aimed at; speare's plays, pub. in 1623. Per-equally certain is it that he expressed haps the most important of these beequally certain is it that he expressed haps the most important of these bewhat had broken in on other minds lievers are Sir Edward Durning Lawbefore in such terse, beautiful language that men were bound to answer latter, after thirty years' research, the call and follow the gleam. Unclaimed though his great scheme of the Restoration was, yet the Novum of manuscripts which B. buried in the Organum was a worthy crown. He bed of the Wye. According to the lad intended much more, and there or manuscripts which B. buried in the Organum was a worthy crown. He bed of the Wye. According to the lad intended material which shows how the was thought out, arranged, and recast. It was written and re-written twelve times over before its publication. Mr. Ellis says that the scheme for the Instauratio Magna was as of timbers. No measurements were given, but the place was indicated by general survey of the present state general survey of the present state means of a Rom ford, and a reference of knowledge; in the second men to a cleft in the cliff. During Easter are to be taught how to use their week, 1911, Dr. Owen, assisted by the understanding; in the third all the Duke of Beaufort's workmen, disphenomena of the universe are to be covered timbers which seemed to be covered timbers which seemed to be between 200 and 350 years old, and which had not been part of a bridge. Later a type of cache was discovered. but then the work was discontinued. Dr. Owen's theory was that B. and Essex were the children of Elizabeth and Leicester, being the offspring of a marriage which took place in the Tower during Elizabeth's imprison-ment there. At the age of sixteen B. discovered this, and in a fit of anger the queen admitted it. Not daring to publicly resent his position B. confided it to cypher writings, and, inspired perhaps by the story of Philip of Macedon, who buried all his treasures near a ford in the R. Oxus, B. determined to do likewise. It is conjectured that the literary secrets revealed will be even more interesting. Not only will Shakespeare's plays be conians may be summed up briefly as proved his, but much of the work now follows: Francis B. was undoubtedly, attributed to Robert Greene, Peele, if we exclude the author of Shake-Marlowe, Spenser, etc. will be also speare's plays, the greatest mind of made known as his. The stupendous the Elizabethan epoch. To him nature of this claim is dismissed by

Setting aside all these claims, even if B. is never proved to be Shake-speare, or Shakespeare B., it is enough that his already acknowledged work be accurately judged to place him in the front rank of the geniuses of the world. In one sphere alone, it it is granted that Macaulay's words In one sphere alone, if are true, he 'moved the intellects that moved the world.' Whether he did more is doubtful; let us at least pay homage to him for what he has done.

Bacon, John (1740-99), an Eng. sculptor. Trained as a modeller and painter on porcelain. In 1769 a basrelief representing the flight of Æneas from Troy won for him the first gold medal ever awarded by the Royal Academy for sculpture. In 1770 he exhibited a figure of Mars, and in consequence received the gold medal of the Society of Arts and was elected an associate of the Royal Academy. His rivals accused him of ignorance of classic style, and to repudiate the

Bacon, Leonard (1802-81), American Congregational minister, editor and author, called 'the Congrega-tional Pope of New England;' born Graduated at at Detroit, Michigan. at Detroit, Michigan. Graduauty Yale University, 1820, and Andover 1823. In 1825
First Church.

ch he was connected till his death, 1826-38. Ed. the Christian Spectator. He was one of the founders of the New Englander, 1843, and of the New York Independent, 1848, which he ed. in 1863, 1866-71 professor of didactic theology at Yale University, and from 1871 till 1881 of church polity and American church history. A keen advocate of temperance and of the abolition of slavery, and a writer of

Nathaniel (1593-1660), a hymns. Bacon, lawyer. Member Long Parliament, 1645-60.

governor's council. Headed an expedition against the Indians, in defigure of Governor Berkeley's policy. interdicted, and he was imprisoned in Was proclaimed a rebel, captured, Paris. During his confinement he tried, and acquitted. B. and his was requested to send to Rome a copy

the Baconians with the assertion that supporters demanded a reduction even then it will not be equal in bulk of taxes and an extension of the to the work of Sir Walter Scott.

Supporters demanded a reduction of taxes and an extension of the suffrage. Being for a second time suffrage. Being for a second time proclaimed rebels, they marched on Jamestown, which they captured and destroyed, but Bacon died before

he could carry out any of his reforms.

Bacon, Sir Nicholas (1509-79), Eng.
statesman, father of Francis B. by his second wife Anne, daughter of Sir Anthony Cooke. He graduated at Corpus Christi College, Cambridge, in 1527, after which he entered Grav's Inn and was called to the bar, 1533. In 1537 he became solicitor of the Court of Augmentations; 1546 attorney of the Court of Wards and Liveries; 1550 he became a bencher, and in 1552 treasurer of Gray's Inn. After the dissolution of the monas terics, 1539, he received a large share of the forfeited estates from Henry VIII. During Mary's reign, his Protestantism cost him many of his emoluments, though he retained his office in the Court of Wards. On the accession of Elizabeth, 1588, he became a Privy Councillor and Keeper of the Great Seal. In 1559 he was classic style, and to repudiate the of the Great Seal. In 159 ne was charge he executed a head of Jupiter Indighted and was allowed to exercise Tonans. The best known of his works are the monuments of Pitt in Westminster Abbey and the Guid- (afterwards Lord Burleigh) had the hall, of Dr. Johnson and Howard in St. Paul's Cathedral, and of Blackstone in All Souls, Oxford. He was buried in Whitefield's Tabernacle. knighted and was allowed to exercise in St. Paul's Cathedral.

Bacon, Robert (d. 1248), the first Dominican writer in England, the brother, or, according to some authorities, uncle of Roger Bacon. He was educated at Oxford and Paris, joined the order of the Dominicans, and (possibly) succeeded Edmund Rich as treasurer of Salisbury Cathedral in 1233. He rebuked Henry III. for his fondness of foreign advisers, notably Peter des Roches. He wrote a life of Edmund Rich, Liber in sententias Petri Lombardi, Sectiones Ordinaria, and other works. Bacon, Roger (c. 1214-94), an early

Eng. philosopher and scientist, author of numerous treatises; b. near Ilchester, Somerset. Educated at Oxford, where he took orders in 1233. Went to Paris for study and returned about 660), a 1250, when possibly he joined the of the Franciscan order. His learning won Wrote for him the title of 'Doctor Admirate United His brother friars were jealous an Historical Discourse of the Uni-bilis. His brother friars were jealous formity of the Government of England. of his ability, and his research in Bacon, Nathaniel (1642-76), born in physics and chemistry caused him to England, but emigrated to Virginia, be suspected of dealings in the black where he became a member of the arts and gave rise to doubts as to his commonly convenient.

orthodoxy.
In 1257 his lectures at Oxford were

of his work, which the Pope, Clement, wheat in Hungary. IV., had been forbidden to read at the hemp, and tobacco are also cultivated time when he was Guy de Foulques, Cap. Zombor. Pop. (1990) 767,632. papal legate in England. B. accord-Bacsanyi, Janos (1763-1845), Huningly wrote his Opus Majus, which he garian poet. His first pub. work was followed up in 1266 with Opus Minus The Valour of the Magyars, a poem, and Opus Terlium. It is not known Heedited the Magyar Museum, which and Opus Tertium. It is not known what Clement thought of them, but at any rate B.'s release was effected, and in 1265 he was back in England. Ten years later his works were again condemned as heretical, and his second imprisonment, which lasted fourteen years, was sanctioned by Pope Nicholas III. During this term of imprisonment he wrote many treatises including De Belendandis treatises, including De Relardandis Senectutis Accidentibus. He was released in 1292, and died about 1294.

of signatures.

BACON, FRANCIS.

Baconthorpe, Bacon, or Bacho, John (d. 1346), an Eng. schoolman and philosopher, called the ' Resolute Doctor: the grandnephew of Roger He entered a Carmelite monastery near Walsingham, graduated at the university of Paris; became the head of his order in England, 1329-33. In 1333 he went to Rome, and returned to England in 1346. He preached the doctrines of the Arabian philosopher Averrhoes (q.x.), and wrote commentaries on the Bible and numerous treatises, including Commentaria super Quatuor Libros Sen-tentiorum, Paris, 1484. Consuit Aymers (Turin, 1667-9, and Zazalia (Ferrara and Parma, 1696-1706).

Bacs, or Bacs-Bodrogh, a co. of Southern Hungary, being a plain lying between the Danube and Theiss, which rivs. are joined by the Báes or Franzens Canal, constructed between the years 1796 and 1802. Area 4300 eq. m. The soil produces the best microbe.

The vine, fruit.

was suppressed by the gov. as advo-cating dangerous liberalism. He was complicated in the conspiracy of Bishop Martinovitch, and suffered imprisonment. During the remainder of his life he suffered persecution.

Bacteria, minute vegetable organisms possessing no chlorophyll, and multiplying under favourable conditions by repeated bi-partition. The names bacilli, microbes, micrococci, micro-organisms, and germs are also B.'s fame has increased of late popularly applied to the group as a years. The Opus Majus is a store-whole, but in scientific classification house of information. In it he they are called schizomycetes. The showed up the vices of the theology organisms are so small that 1500 of of his time, expounded the necessity some species placed end to end would of ms time, expounded the necessity some species placed end to end would of reformation in the sciences by a hardly extend across the head of a careful study of nature, and despin, and multiply so rapidly that a canted generally on alchemy and single microbe might produce sixteen other sciences. B. discovered errors and a half million in twenty-four in the existing calendar, and his hours. Their general function is the rectified calendar may be seen at breaking up of organic matter, causousford. He had a practical knowing changes in its chemical constitutions of chemical in advance of his in which may be beneficial as in ledge of chemicals in advance of his tion which may be beneficial, as in age, but he shared in certain popular preparing nutriment for vegetation in beliefs with regard to alchemy, the the soil; or harmful, as in the causaphilosopher's stone, and the doctrine tion of disease in man, animals, and plants.

of signatures.

Bacon Beetle (Dermestes Lardarins), a destructive species of beetles, the plants of varying shapes: spheriwhich attack bacon, dried foods, and the cell consists of a mass of protoplasm small and black, with the exception with irregular spaces, and is enclosed of the root end of the wing, which is by a cell wall which appears to be a golden-brown and dotted with three differences of the protoplasm, but dark spots.

Bacon-Shakespeare Controversy, see the pare often fat-like granules which there are often fat-like granules which take a deep stain. Grains of starch, droplets of oil and fat, particles of sulphur, and traces of pigment are sometimes observed. Most B. have a power of locomotion derived from the development of cilia or flagella, fine threads of protoplasmic material which project probably through pores in the cell wail. The cilia are difficult to see under the microscope even when stained, but in many cases have been photographed

Reproduction.-When conditions are favourable, a constriction appears in the middle of the cell, in a direction at right angles to the long axis. A partition wall is formed and the partition wall is formed and the microbe divides into two. When the conditions are unfavourable to the life of the B., a small mass may collect at one end of the cell surrounded by a dense membrane. This mass is called a spore, and may survive adverse condition- which would kill the The vital force remains

dormant until the spore is placed in measures in the case of dangerous favourable circumstances again, when it expands into the complete bac-

terium and goes on with its life work. Classification.—The subdivision of schizomycetes is still in a provisional and tentative state. Attempts have been made to base a method of classi- dence obtained inconclusive. fication or.

tribution elementar similarity

cocci are small spheroidal B.; when joined together in a chain they are termed Streptococci, and others that grow in masses or bunches are called Staphylococci. Rod-like or cylindrical B. are called Bacilli, and those occurrin

where B. nfusion different forms, spherical, cylindrical, and spiral. Some species use up all the available nourishment and die or dwindle into spores. Other species enter and multiply, and are in their turn destroyed through the exhaustion of the food supply or by the poisons created in the medium by

other species. is thus alway difficult to stu actions unless each species can be This may separately collected. done by placing upon a sterilised slice of potato or other suitable medium a small quantity of bacteria-containing material, and the whole kept in a tube at a temperature favourable to the growth of the B. When masses or colonies of B. appear, if it is required to separate the species the medium is diluted with melted gelatine or agaragar so that the B. are well scattered. The gelatine mixture is then poured into a Petri dish, a shallow glass vessel with a glass cover. The gelatine solidifies, so that the B. are fixed in the medium. Around each bacterium a colony grows up, which is prevented from admixture with other species by the solid nature of the medium. Little bits of gelatine containing the desired colonies may be picked out with a sterilised platinum needle and transferred to separate tubes. In this way what is called a 'pure culture' may be obtained. B. are best examined under the microscope by staining the mixture with analine dyes in solution, such dye being used as is known to colour the B. and leave the medium comparatively unaffected. When a pure culture has been obtained, ex-periments are performed with the view to determining how they are affected by changes in their environment, the application of heat and cold, the addition of various drugs, disease-germs. Inoculating animals has been the means of producing interesting information, but as a rule the difference in the blood composition of certain animals as compared with man renders much of the evi-

Putrefaction .- When life parted from any organic substance B. are quickly on the spot to feed upon the dead matter, changing the composition of the substance, absorbing what they need for their own nourishment, and setting free the remainder. The rejected substances are very often bad-smelling gases, but sometimes aromatic vapours. Whether obnoxious to man or not, they are utilised by some plant or animal which depends upon the ser-vices of the B. for its nourishment. The farmer avails himself of the changes produced by B. in preparing his manure heaps, and the organisms may be said to be the medium by which the dead organic matter is converted into substances capable of being once more assimilated by living matter.

Phosphorescence. — The greenish light which is sometimes observed on the surface of the sea or on the bodies of salt-water fish is due to the presence of a bacterium which flourishes in the presence of sodium chloride and free oxygen. The phosphorescence exhibited by meat, decaying wood, and vegetables is also due to a microbe. The way in which the phosphorescence is produced is at present a mystery.

Bacteria and nitrogen.—Among the most important phenomena associated with bacterial action is the way in which the nitrogen of the atmosphere is rendered available for the use of animals and plants. Plants require carbon, oxygen, hydrogen, and nitro-gen for their growth. All these exist in the atmosphere, but atmospheric nitrogen cannot be used by plants until it has first been converted into nitrates by the agency of bacteria. Leguminous plants, such as clover, peas, beans, etc., are so well served in this respect by particular B. that they actually leave the soil richer in nitrogen than when they were sown. The microbe lodges in the root as a parasite, and its presence is indicated by the appearance of nodules or tubercles upon the roots. Plants which are affected by this bacterium grow more vigorously than plants grown in sterilised soil and free from Leguminous plants are nodules. therefore an important item in the cold, the addition of various drugs, rotation of crops, and artificial cul-etc. Such researches have often led tures of the B. concerned are pre-to the adoption of successful remedial pared so that the plants may attain

extreme heat, and boiling is usually relied upon for the sterilisation of milk, etc. There are certain organ-isms called thermophilous or 'heatloving 'B., which grow and multiply at 70° C. Such germs are responsible for the heating of damp hay and other vegetable products. Other forms are found flourishing in hot springs at a temperature of 77° C.

Bacleria and cold.—Some B. resist the action of cold, and cannot only move actively in cold water, but may be frozen fast in blocks of ice. In this state the B. do not multiply, but remain in a dormant condition until a more favourable environment is estab. Experiments with liquid air and liquid hydrogen have shown that some B. survive the lowest temps. that have yet been obtained. It is a mistake to suppose, therefore, that ice is necessarily aseptic. Nevertheless the fact that the growth and multiplication of B. are arrested by low temps. renders the use of ice in preserving foodstuffs of great importance.

Bacteria and light.—As a rule, B. are destroyed in a short time by bright sunlight, and in any case develop more rapidly in the total absence of light. It has been found that the ultra-violet rays are most efficient in bactericidal action, and the electric arc, which is particularly rich in blueviolet and ultra-violet rays, has been used with some success in the treatment of lupus by the Finsen lamp. There have been attempts at utilising these rays in the sterilising of milk these rays in the sternising of milk and for other purposes, but a really efficient and economical apparatus has yet to be found. One desirable point in such a process is that the dreaded bacillus of authrax is destroyed, whilst it survives the temp. of boiling in the ordinary processes of confliction. sterilisation.

Bacteria and disease.—The con-nection of B. with certain forms of conclusively was demonstrated by Pasteur, though it had long been suspected that suppuration was due to the presence of organisms in wounds. Diseases due to wounds are caused by small spherical B., strepto-coccus pyogenes and staphylococcus pyogenes. They are constantly present where people are gathered together, especially in sick wards of hospitals and other places where there are with suppurative persons affected inflammation. Child-bed fever is caused by the same organisms, and

their highest efficiency in attracting disease was known. The danger has nitrogen to the soil.

Bacteria and heat.—B. are killed by precautions taken to sterilise the hands and instruments used in childbirth and by the gradual improvement in the standard of efficiency and general intelligence of midwives.

The formation of pus when wounds are injected by these B. is due to the action of the leucocytes, or white corpuscles of the blood. They are single cells which under ordinary circumstances circulate with the blood-stream, but are capable of penetrating the walls of the blood-vessels into spaces in the tissues. The work they do is the enguling and digesting of small particles of waste or foreign substances, and they thus serve as scavengers to the blood. When B. enter a wound the corpuscles make their way to the part affected, and there ensues a struggle between the absorbing powers of the leucocytes and the multiplying power of the B. The dead bacteria and corpuseles form a white or creamy mass known as pus, and this is discharged from the wound. If the corpuscles are successful in the struggle, they help, with the co-operation of other cells in the blood, in forming new tissue to heal the wound. If the B. are not destroyed they may penetrate to other parts of the body, where other abscesses and growths may be formed. The great danger to health lies in the changes in the composition of the blood due to the action of the blood: toxins or poisons are formed and circulate in the blood, forming the condition known as toxemia; if the B. themselves with their toxins are carried away in the blood-stream the condition is called septicæmia.

Tuberculosis.—The disease known as consumption or tuberculosis is occasioned by very small rod-shaped bacilli, which gain access to the body and form round themselves little masses of new tissue, called tubercles. These are often formed in the lungs. and when the tubercles break down owing to the dissemination of the bacterial poison, cavities are produced which naturally impair the efficiency of the lung and serve as a depôt for the bacilli. The bacilli of tuberculosis only exist in the bodies of human beings and certain animals, so that it is possible, by destroying the bacilli at every opportunity, to eradicate the organisms altogether. When ejected from the living body in the sputum they retain their vitality for some time, and it is by this means that infection of other persons often takes place. The resistance of the undoubtedly many cases were occa-human body to the tubercle bacillus sioned by doctors and nurses carry-is, however, considerable, and the sioned by doctors and nurses carry-is, however, considerable, and the ing infection before the origin of the maintenance of general health is

prime importance in persons disease by the changes induced in the threatened with consumption.

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Typhoid fever is caused by rod-like bacilli which are considerably larger than those associated with tuberculosis. They enter the body with food or drink and multiply in the intestines, giving rise to toxins which when carried to other parts of the produce the characteristic symptoms of the disease. The bacillus

typhoid is bound up with the methods of sewage disposal. A unique feature is that the bacilli sometimes become domesticated in the person who has recovered from the disease, and al-though no longer injurious to their host, are still capable of infecting other persons.

Pneumonia is incited by lance--ococci, shaped which se and

They mouth are delicate organisms, and only thrive when the resistance of the body is considerably diminished. Over-work and bad conditions of life are more responsible for the development of the disease than the mere presence of the pneumococci, and a plentiful supply of oxygen for the body-cells is an important factor in the overcoming of the toxins produced by the bacilli.

Other pathogenic bacteria.—Tetanus bacilli are club-shaped organisms which flourish in ordinary cultivated soil and street dust. In the human

jaw which gives the name of 'lockiaw' to the disease. Infection is usually caused through dirty wounds. The plague bacillus is a short and plump organism which has a partiality for the rat as well as for man, and it is possible that the disease may be communicated from the rat to man by means of fleas which have themselves become infected. The B. of many diseases have not yet been isolated; that of yellow fever is undoubtedly

vary in their susceptibility to bacterial disease, owing probably to some in-herited constituents in the blood which renders it favourable or other--- B. Where

unaffected are said to

enjoy natural or hereditary im-munity. It is also possible to acquire immunity from a second attack of a Bactrian kingdom which extended as

body as a consequence of the first attack. When bacterial poisons are produced in the blood, the body-cells elaborate certain substances which unite with these toxins and render them harmless. A habit of forming such anti-toxins may be estab. with the result that on subsequent infection the body may already be in a condition to neutralise the effects of bacterial invasion. Thus people who recover from small-pox, measles, scarlet fever, and, to a certain extent. typhoid fever, are protected from further attacks for a considerable further attacks for a considerative time. The anti-toxin is usually specific, that is, it is only effective against one particular disease, and considerable progress has been made in the artificial preparation of anti-toxins to aid the natural resisting power of the body in fighting certain diseases. For example, when a horse is inoculated with the poison produced by diphtheria bacilli, his cells are stimulated to bring forth the appropriate anti-toxin. The treatappropriate anti-toxin. The treatment is continued with larger doses of the toxin as the horse increases his resisting pow toxin. He is

or clear fluid and used to nationts, thus enabling them to combat the disease with greater prospects

of success. It is also found that by introducing into the blood certain killed B. or 'vaccines' the body-cells are stimulated to produce substances called opsonins, which cause the B. to become easier prey for the detending corpuscles of the blood. Treatment corpuscies of the blood. Treatment of this nature, therefore, tends to make the body immune against the particular disease. See W. D. Frost and E. F. M'Campbell, Text-book of General Bacteriology, 1910; R. T. Hewlett, Manual of Bacteriology, 3rd ed., 1908; R. Muir and J. Ritchie, Manual of Bacteriology, 5th ed. 1910. Bacteriak, a name applied to the bacteria which form tubercles on the

bacteria which form tubercles on the roots of leguminous plants, e.g. beans living in symbiotic relationship with

the plant. associated with a particular species of mosquito, but the parasite itself is still an enigma.

Immunity.—Individuals and races Sogdiana, on the S. by Ariana. Its raryin their suscentibility to be deadly a locally history is with Ariana. early history is mythological. Conquered by Cyrus c. 540 B.C., when it was made one of the satraples of the Persian empire. It was conquered by Alexander, and became a prov. of the Macedonian empire under the rule of Seleucus. About 255 p.c. Diodotus, a satrap, asserted his inde-pendence and founded a GreecoDuring the 6th century A.D. it was sub-

During the 6th century A.D. it was subjugated by the Turks and came under the rule of Islam. The cap., Bactra, or Zariaspa (modern Balkh), was the cradle of the Zoroastrian religion.
Bactrian Coins have been found in the 'topes' or burial-places to the N.E. of Kabul. The inscriptions are written in the B. alphabet, an off-shoot of the Iranian alphabet. The same characters are found on rocks near Peshawar and Kathiawar, which had been inscribed in the 3rd century by Asoka, a great Buddhist emperor. by Asoka, a great Buddhist emperor, with sermons on his faith. Dr. Isaac Taylor discovered that the numerals in ordinary use are the actual symbols of Indo-Bactrian letters found on the above-mentioned coins, e.g. 4 is the Indo-Bactrian letter ch, chatur (cp. Lat. quatuor), 5 is p, panchan (cp. Gk. negre). This alphabet was probably introduced into India after the conquest of Darius, then brought to Spain by the Arabs in the 12th century, whence it spread throughout Europe, and was adopted in place of the more clumsy Roman figures. Bactris (Gk. βάκτρον, staff), a genus of American palms of small size, with

slender stems which are much used in making light but solid walking-sticks. B. maraja produces a small fruit of pleasant taste; B. acanthocarpa, a fibre used in making nets.

Baculites, a genus of polythalam-

Badagry, a small state and tn. in Southern Nigeria, Africa. It does a considerable trade in palm-oil.

Badajoz, a frontier prov. of Western Spain, formed in 1833 from dists. taken from the prov. of Estremadura. Pop. (1900) 520,246; area 8451 sq. m. The country is watered by the R. Guadiana, and there are low ranges of

far as the Kabul and the Indus. through lack of water and means of communication. The Madrid-Lisbon Railway passes through Villanueva de la Serena, Mérida, and Badajoz. Agriculture is neglected, but livestock—acorn-fed swine, sheep, and goats—is reared. Lead and copper are found in small quantities. The important tns. are: B., the cap., 30,899; Almendralejo, 12,587; Don Benito, 16,565; Azuaga, 14,192; Villanucya de la Serena, 13,489; Mérida, 11,168.

Badajoz, the cap. of the Spanish prov. of the same name, situated on the l. b. of the Guadiana. The tn. is a . natural fortress, built on a slight hill which is crowned with the ruins of a Moorish castle. It is the Pax Augusta of the Romans. Later captured by the Moors, and in 1031 made the cap. of a small Moorish kingdom, when it was named Bax Augos, or Bathaljus. In 1168 held by the Portuguese, but retained its independence till 1229, when it was captured by Alphonso IX. As a key to Portugal it has been an important stronghold in times of war; 1660 besieged by the Portuguese; 1705 besieged by the allies in the War of the Spanish Suc-cession. During the Peninsular War it was unsuccessfully attacked by the Fr. in 1808 and 1809, and finally sur-rendered to Marshal Soult, 1811. It Bactrices, a genus of fossil ammoni-tide with a straight instead of a The prin. industries are woollens, spiral shell. The genus is found in cotton, leather, pottery, soap, and Silurian and Devonian strata.

(1900) 30,899.

Baculites, a genus of polythalamous cephalopods belonging to the family of fossil Ammonites. The shell is congated, straight, and conical. The chambers are pierced by a maccomity and cretaceous formations. The best pecimens are to be found in the baculate limestone of Normandy.

Bacupla modern municipal bor. Bacuplate modern municipal bor. The conference of Normandy. The defence of E. If neashire, England, on the Lancastire and Yorkshire Railway. Cotton spinning and power-loom weaving are the chief industries. There are beautiful woods, fermities of its orchards and flower-gardens, its fruit and nightingales. It was visited by Marco Polo, 1272-3, and mrit. tu. of the Rossendale div. of E. If neashire, England, on the content of the chief industries. There are beautiful woods, fermities of its orchards and flower-gardens, its fruit and nightingales. It was visited by Marco Polo, 1272-3, and by General Wood, 1837-8. The speaking Persian. They are Mohamweaving are the chief industries, lazuli, and rubles are found. Many kinds of animals are to be found there, of which may be mentioned the quarries in the dist. The pop. is quarries in the dist. The pop. is vak, cattle, camels, wild sheep, wolves, 34,178 (\$\dag{\chi}\$001). [oxes, jackals, bears, boars, and leopards. Originally belonged to the Gk. Bactria. From the 13th century onwards governed by the so-called descendants of Alexander the Great. In the 18th century it belonged to the empire of Nadir Shah. In the 19th it was captured by the chiefs of the Kataghan Usbegs of Kunduz, but in 1859, Mir Jahanded Shah, a reprosperitive of the present description of the present description of the present description. hills. The climate varies between sentative of the present dynasty, was extremes of heat and cold. The rain-reinstated and agreed to pay tribute fall is scanty. The prov. suffers to Afghanistan. In 1873 England and

Russia agreed upon a frontier between the house of Lähringen. His second Bada hshan and Afghanistan. Pop.

about 100,000.

Badalocchi, Sisto (c.1581-c.1650), surnamed Rosa, b. at Parma. An Italian painter and engraver, pupil of Annibale Carracci, whom he and a annuaue Carracci, whom he and a co-disciple, Lanfranco, accompanied to Rome in 1606. There he executed two paintings for Verospi Palazzo, both representing Polyphemus and Galatea, and he assisted his master in some of his prin. works. On the death of Carracci, 1609, he went to Bologna, where he died about 1650.

Badalona, a seaport in the prov. of Barcelona, Spain, 5 m. N. of Barcelona town. The surrounding dist. is rich in fruit. The tn. has ship-build-

rich in trutt. The til has sing sunding, sugar-refineries, and glass-works.

Baden, The Grand Duchy of, part of the German empire, lies between Alsace-Lorraine and Würtemberg, and is separated from Switzerland by the Rhine. It is divided into four containts. Freither Karley dists., Constance, Freiburg, Karls-The country ruhe, and Mannheim. The Schwarzwald, is mountainous. or Black Forest, has a maximum alt. of 4903 ft. The Neckar highlands are lower; to the N. of them begins the Odenwald. To the S. are the wide plateaus of the Ger. Jura, drained by the Rhine and the Danube. The tribs. of the Rhine on the B. side are the Neckar, Murz, and Elz. north-eastern territories bounded by the Maine. There is one lake, Constance. The Rhine valley is very warm, and the soil rich and fertile. Vegetables of all kinds, grain, hemp, tobacco, opium, and winesare produced. Cattle are reared, and the production of honey is important. Clocks and straw-plaiting are the chief industries, and the jewellery of Pforzheim is well known. Other manufs. are ribbons, cottons, brushes, paper, cigars, leather, rubber goods, machinery, mirrors, and chemicals. Limestone quarries are worked, and there are important clay and gravel pits. Cc. arefour

> There is a nouse and a

chamber of sixty-three representatives. B. sends three representatives to the Bundesrath and fourteen to the Reichstag. School teaching is excellent. There is a Protestant university at Heidelberg and a Roman Catholic one at Freiburg. The early inhab. one at Freiburg. were Alemanni, who fell under the dominion of the Franks; 496 conquered by Clovis and christianised; 748 Pepin the Little abolished the dukedom of Alemanni. In the 11th Vienna), a fashionable resort of Lower century Duke Berthold built the castle Austria, in the valley of the Wiener-of Lähringen in Breisgau and started wald, 167 m. by rail from Vienna.

son Hermann took the title of margrave, and became the ancestor of the still famous house of B. In 1715 Margrave Charles William built Karlsruhe. His grandson, Charles Frederick, succeeded in 1746; he favoured the policy of Napoleon, joined the confederation of the Rhine. and in consequence doubled his estates, and gained the title of elector and grand-duke. In 1811 he was succeeded by his grandson, Louis Frederick, who seceded from the confederation of the Rhine and in 1815 federation of the Rhine and in 1815 joined the Ger. confederation. In 1830 Leopold succeeded his half-brother Ludwig, and his rule began with a contest between Liberals and reactionists. In 1846 the constitutionalist Bekk was made Minister of the Interior and Liberalism had the upper hand. In 1848, at the time of the Revolution in France, Hecker and Strive drove out the grand duke and Struve drove out the grand duke and estab. a republic. The latter was reinstated by the Prussians, July 1849. In 1866 B. joined Austria against Prussia, and, when peace was made in the following year, joined the N. Ger. confederation. 1870-1 fought in the Franco-German War and became part of the restored German empire. Pop. (1908) 2,009,320.

Baden, or Oberbaden, a wateringplace in the Swiss canton of Aargau, on the l. b. of the Limmat. Famous for its sulphur baths (the Aque Heltor its suiphur baths (the Aque Hei-vetiæ of the Romans), which reach a temperature of 117° F. From the 15th to the 18th century it was the seat of the Swiss diet. Pop. (1900) 6050, but visited yearly by 20,000 persons. Baden-Baden, in the valley of the Oos, at the edge of the Black Forest, we from the Philip. A fameur resort

8 m. from the Rhine. A famous resort of society people of all nationalities. The season lasts from May to Sept., and there is a brief winter season. The gaming-tables were once famous. but were abolished in 1872. There are medicinal springs composed of iron, magnesia, lime, and sulphur, and varying in temperature from 115° to 150° F. On the summit of the Schlossberg are the ruins of an old castle, destroyed by the Fr. in 1689. The 'new castle,' built 1479 and likewise destroyed in 1689, has been restored, and is the summer residence of the grand duke.

The city was founded in the 2nd century A.D. by Hadrian (Civilas Aurelia Aquensis). Rom. antiquities and the remains of a vapour bath and dungeons have been found. Pop. (1905) 16,238.

Baden - bei - Wien (Baden near the found of the

Known to the Romans as Aque Pan- land, and the cross of Christianity. nonice. Famous for sulphur springs, Bs. are also worn as signs of office, or which are visited annually by over as a token of membership of some 10,000 persons. These springs vary in society, e.g. Solomon's seal and the temperature from 79° to 104° F., and mason's tools used as an emblem by are recommended for gout, rheuma- Freemasons, and the primrose used as

Inverness-shire, Scotland, 45 m. in length and 19 m. in breadth. It is the more elaborate devices of heraldry traversed by the Spey.

and granite are found.

Baden-Powell, Lt.-Gen. Sir Robert Stephenson Smyth, K.C.B., C.V.O. (b. 1857), a British officer, son of the Rev. Professor Baden-Powell of Oxford. He was educated at Charterhouse, and joined the 13th Hussars in 1876, with which he served in Indía, Afghanistan, and S. Africa. Assistant military secretary in S. Africa, 1887-9, paign, 1896-7; ra

of the 5th Dragor the Boer War he

by his brilliant defence of Mafeking; from the nose to the back of the ear. in spite of famine and sickness, with a force of 1200 men he held the tn. for 215 days, till its relief on May 18, 1900. In recognition of his ability he was raised to the rank of major-general; inspector-general of the S. African constabulary, 1900; inspec-tor-general of the cavalry, 1903-7. With the object of promoting a spirit of patriotism among the rising genera-tions, hestarted the Boy Scouts movement, 1908, in which organisation he is Chief-Scout. He was knighted in 1909.

Acade tions a 1889 :

struction, 1895; The Matabele Campaign, 1896; Sport in War, 1900;

Scouting for Boys, 1908.

Badenweiler, a vil. of Baden, Germany, noted for its alkaline thermal springs. It is near the Black Forest, and 3 m. from Mülheim. It contains remains of Roman springs. Pop. 600.

Badge, a device used as a distinctive emblem of families, countries, It is a simpler and more primitive cognisance than the crest or coatof-arms, and is not subject to the laws of heraldry. Bs., like crests and coatsof-arms, are usually symbolical in character, but on the one hand are distinct from the coat-of-arms as not being supported on a shield, and on the other hand are distinct from the erest as not surmounting a wreath. Famous badges are the fleur-de-lis of the Fr. kings, which can be traced back to the reign of Louis VII. (1137-80), the Tudor rose, the thistle of Scotland, the harp and trefoil of Ire-

tism, and all kinds of skin diseases. a badge by members of the Primrose Pop. (1900) 12,447.

Badenoch, a dist. in the S.E. of peoples to identify their arms and mark their belongings. From the B. Gneiss rock were evolved.

Badger (Meles), a genus of burrowing carnivores, constituting with the skunks the sub-family Melinæ in the Mustelidæ, or weasel and otter family. Its chief characteristics are short, strong legs, long and more or less plantigrade feet, and a pointed muzzle.

ids, containing a a fetid odour

be of use in sexin Malta, 1890-3; commander of the attraction. The common B. (M. taxus native levies in Ashanti, 1895; served or M. vulgaris) is found in the hilly with distinction in the Matabele camand woody dists. of Europe and Asia, but is now rare in Great Britain. colour is greyish-brown, with a white head marked with black lines running



INDIAN BADGER

It is about 2 ft. 6 in. long, and stands 1 ft. high. It is an inoffensive, solitary animal, sleeping by day in subter-ranean burrows which it digs for itself, and wandering by night in search of its food, which consists of roots, insects, frogs, and the larvæ of wasps and bees. The American B. (Taxidea Americana) is more carnivorous, and eats small animals such as marmots. Bs. are conspicuous for their shrewdness, perseverance, and courage. The cruel practice of badger-baiting, or drawing the B., was prohibited in England in 1850. A B. was kept in a barrel and attacked by dogs until it at last gave way and was dragged out. Then its owner released it from the dogs and put it back into the barrel to recover itself. This performance was continued during the day, and formed an attraction at public-houses of a low order. The verb 'to badger,' meaning to assailrepeatedly, to worry, is probably derived from this practice.

Badger, George Percy (1815-88), an Arabic scholar, born at Chelmsford,

Essex. His early life was spent at in S. Dakota and Nebraska, on Malta and Beirut. He worked in the the White R., the Yellowstone, and editorial dept. of the Church Missionary Society at Malta, and in 1841 terest is zoological, as they contain editorial dept. of the Church Mission-ary Society at Malta, and in 1841 entered that Society's institution at entered that Society's institution at Islington and became a priest. On account of his knowledge of the eastern languages, he was sent out as delegate to the eastern churches (1842-4 and 1850); gov. chaplain at Bombay, 1845; chaplain at Aden, 1846. He joined a Persian expedition under Sir James Outram, 1854-7. He was created D.C.L. by the archbishop of Canterbury in 1873. Author of The Nestorians and their Rituals The Nestorians and their Rituals, 2 vols., 1852; An English Arabic Lexicon, 1881.

Badger-baiting, see BADGER.

Badghiz (home of the winds), a dist. in the N.W. of Afghanistan, and bounded by the Murghab and Harirud The region of the Murghab R.

is fertile.

Badia-y-Lablick, Domingo (1766-1818), a Spanish traveller, b. at Bar-He had enthusiastically studied Arabic language and life, and to complete his education he disguised himself as a Mussulman and called himself Ali-Bei. His disguise was perfect, and he was invited to the court of the Sultan of Morocco, where he was held in high esteem. Two years later he went on a pilgrimage to Mecca, and there performed all the rites. He returned to Spain, but he was forced to quit the country on the fall of Napoleon. At Paris he pub. an account of his adventures in the E., under the title of Voyage d'Ali-Bei en Afrique et en Asie, which soon be-came popular all over Europe. During his last voyage to the E. he died.

Badister (Gk. βαδυτής, walker), a genus of coleopterous insects belonging to the family Carabidæ. They inhabit marshy dists. of India and Madagascar; they are of small size and of a reddish, yellow, or black

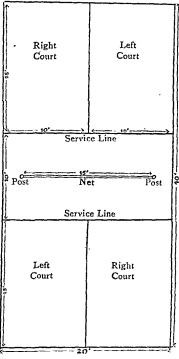
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Badius Jodocus, or Josse (1462-1535), an eminent Fr. printer. He was born at Assche, near Brussels, and is therefore sometimes called Ascen-He studied at Ghent, Brussels, and Ferrara, and taught Gk. at Lyons and Paris. Treschel, a famous printer, engaged him as corrector of his press, and afterwards secured his services as a partner in the business. In 1500 he settled in Paris and estab. a printing office that went by the name of Prælum Ascensianum. He also wrote books, which include A Life of Thomas & Kommis College contra v

valuable fossil specimens.

Badminton is a game which only. attained to popularity in this country because its introduction was a few years prior to the introduction of the more interesting game of tennis, Before the game was introduced into England it was much played in India.



BADMINTON COURT

The name is derived from B. House, the seat of the Duke of Beaufort, in Gloucestershire, where it was said to have been invented. In the second half of the 19th century the game came to England from India. The game is really a development of the nursery game of battledore and shuttle-cock, and is played both indoors and out-of-doors. doors and out-of-doors. B. is not unlike tennis in character, but is played with shuttle-cocks instead of Bad Lands, great stretches of waste balls, and the play consists entirely of and rugged country in the W. of the volleying. The game is played on United States. Such regions are found courts with one player on each side of

the net (the two-handed or single out of doors ceases to be a game of game), or with two players on each side of the net (the four-handed or double game). The shuttle-cock should have sixteen feathers about 21 in. long fixed in a cork 1 in. in diameter, and should weigh from 75 to 85 grains. The diameter of the circle formed by the feather tips should be about 2½ in. The racket is much slighter than the type used in tennis, though not of specified shape or dimensions, but it usually weighs 6 ounces. The net should be 5 ft. high at the centre and about 5 ft. 1 in. high at the posts. The net varies from 17 to 24 ft. in length according to the position of the posts. Choice of courts or service is decided by a toss. If the winner of the toss chooses first service the loser chooses ends and vice versa. The game consists of fif-teen aces. At 'thirteen all' the side first reaching thirteen has the option of setting five (a long game), and when the score is 'fourteen all' of The court varies from setting three. 30 to 40 ft. in length, and from 15 to 20 ft. in breadth. The maximum court is divided into four courts measuring 15 ft. by 10 ft., thus leaving a centre space of 10 ft. by 20 for the net. The arrangement of the courts is thus similar to the arrangement in tennis, only the server serves The server from within the courts. hits the shuttle-cock into the diagonally opposite court, and the opponent returns it with a volley. The volleying continues until one of the players misses the shuttle-cock or makes a fault. A fault consists in breaking one of the following rules: 1. The server must stand with both feet in the court. 2. The shuttle-cock must clear the net without coming into contact with it or the posts. 3. The shuttle-cock must drop into the court diagonally opposite. 4. The player must not hit the shuttle-cock twice. The shuttle-cock must not be pushed over the net by a part of the body. In serving, as in tennis, two consecutive faults put the server out, but should the opponent take a fault the stroke is no longer regarded as a Sides are changed at the beginning of the second game and at the third game if it is played. During the third game the sides change ends when the side which is leading reaches eight in a game of fifteen aces, or six in a game of eleven aces. The great defect in the game of B. when played out of doors is, that the shuttle-cock is very apt to be caught in the wind. To obviate this difficulty a lead weight is often inserted in the shuttle-cock, but this device is really only of use when the wind is not very high. When the wind is strong B. played

skill and degenerates into a mere game of chance. Other methods have been adopted. Frequently the net is arranged so that the wind strikes it obliquely, and thus both sides are equally handicapped. When the direction of the net cannot be altered, compensation can be made by moving the net a foot or so in the direction of the wind. Thus the player who stands against the wind has not to cover as great a distance as the player who has the wind in his favour. B. on the whole is more successful as an indoor game. A room of smaller dimensions than the regulation court often renders the game exciting. When the shuttle-cock strikes the walls in such a room it will bound off and allow the player to hit it before it touches the ground. B. can be played with artificial light, but the courts should be lit from above as in a billiard-room. suffered owing to the popularity of tennis for many years, but lately it is being more favourably received. Badminton, or Great Badminton, a village of Gloucestershire, England, about 100 m. distant from London. Here is the seat of the Duke of Beaufort, B. House. It is an imposing mansion in the Palladian style of surrounded by fine architecture, surrounded by fine grounds. B. House has given a name to the game out of which tennis was evolved, to a kind of claret cup, and to the Badminton Library.

dilly, has 1000 members united in the interests of coaching and sporting; the entrance fee is 20 guineas, and the annual subscription is 8 guineas, and the annual subscription is 8 guineas. Badminton Library, a standard library of sport and pastimes em-bracing 26 subjects in 29 vols., which was projected by a member of Long-mans'firm and ed. by the eighth Duke of Beaufort and A. E. T. Watson between the years 1885 and 1902.

Badminton Club, a London sporting

club which was founded in 1876 and

named after the estate of the Duke of Beaufort. It is located in 100, Picca-

Badnera, a tn. of Berar, British India, in the dist. of Amraoti. It contains a cotton factory, and is situated on the Great Indian Peninsular Railway. Pop. 11,000.

Badoc, a tn. of Luzon, Philippine Is., in the prov. of Ilocos Norte and about 20 m. S.W. of Laong. Pop.

11,000.

Badrinath, a peak in the Himalayas

23,210 ft. above sea-level. On one of its slopes stands the temple of Shrinagar, whose thermal springs, supposed to be endowed with the power of cleansing away sin, are frequented by thousands of pilgrims.

Baduria, a tn. of Bengal in the

prov. of Calcutta, British India, on were Tarraconensis and Lusitania. the Jamuna riv., a branch of the delta of the Ganges. It has a considerable trade in molasses and sugar. Pop. 13,000.

Bæda, a variation in the spelling of the name of the Venerable Bede.

Baedeker, Karl (1201-59),a Ger. pubi born at Essen, ided on business as a bookseller. He started a book shop at Coblenz in 1827, where he died. His fame chiefly remains on account of his excellent guides. The first guide he published was a handbook on the Rhine. B. guides are now considered the most reliable series in the market. These were based on Murray's Handbooks, and are now said to surpass all other guide-books. They have been translated into

rusiness was 1872, where being pre-

pared.

Bael, or Bhel (Ægle marmelos), an Indian tree prized for its fruit, which is of the orange order. The ripe fruit is very agreeable, and the unripe fruit is dried and used as an astringent. Yellow dye is derived from the rind.

Baena, a tn. in the prov. of Cordova, Spain, about 30 m. S.E. of Cordova. Near B. is the castle which belonged to Gonzalo de Cordova, the

famous captain.

Baer, Karl Ernst Von (1792-1876), Ger. zoologist, b. at Piep in Esthonia. His studies and researches in embryology resulted in his discovery of the human ovum on which he wrote a treatise Epistola de Ovum Mammalium et Hominis Genesi. His next great work was his 'History of the Evolution of Animals' (Ueber die Evolution of Animals' (Ueber die Markette et al. 1887). Entwickelungsgeschichte der Thiere). This book explodes the animalculist theory and proves that the Graafian follicles in the ovary are not eggs, but the real ovum is the spherical vesicle contained by them. He then carefully traced the development of the fertilised egg and the order of the appearance of the organs of the body. Baer was appointed librarian of the Academy of Sciences at St. Petersburg in 1834. The remainder of his life was spent in indefatigable research both in zoology and biology. He made exhaustive studies of the fish of the Baltic and Caspian Seas. Towards the end of his life he pub. his famous autobiography. The work of B. greatly influenced Huxley and Spencer, and he is regarded as the founder of comparative embryology.

Bætica, one of the three provs. into which Augustus divided Hispania, the The other two Spanish Peninsula.

B., called after the river Bætis Lusitania by the R. Anas (= Guadiana), and from Tarraconensis by an imaginary line drawn from the Anas to the promontary Charidemus in the Mediterranean. B. was made into a Rom. colony, with Corduba as its seat of government. The Romans praised the climate and the fruit. The early trade of the country was chiefly in horses, asses, sheep, and wool.

Bætis, the Roman name of the modern Guadalquivir, a river in S. Spain.

Baeyer, Johann Friedrich Wilhelm Adolph Von, a German chemist, b. at Berlin, 1835. Studied chemistry and physics under Bunsen and Kekulé; professor of chemistry at Strassburg (1872). Since 1875 he has lectured at the University of Munich. He was awarded the Davy Medal by the Royal Society in 1881, and the Nobel prize in 1905. He is the leading authority on the chemistry of indigo and has made valuable contributions the knowledge of theoretical chemistry.

Baeza, an old-world tn. in the prov. of Jaen, Southern Spain, 9 m. from a station of its own name which is 160 m. S. of Madrid. It is the Beatla of the Romans and was once a flourishing Moorish city. There is a cathedral and the remains of the university (1533). The city was sacked by the Castilians, 1228. Pop. (1900) 14,379.

Baffa, see BAFFO.

Baffin, William (1584-1622), an Eng. explorer and navigator. Accompanied James Hall on a voyage in search of the N.W. passage, when for the first recorded time longitude at sea was determined by astronomical observation. In 1613 he commanded a whaling-fleet to Greenland, and in 1615 he was the pilot of the Discovery under the leadership of Robert Bylot, when the bay, now called after name, was discovered. He was killed at Kismis, near Ormuz, in 1622, whilst engaged in an Eng. expedition acting in conjunction with the Persians to drive the Portuguese out of the Persian Gulf.

Baffin Land, an is. lying west of Greenland, called after Baffin, the 17th century-explorer (q.v.). The east coast is mountainous and inhabited by Eskimos. The climate is severely cold.

Baffin's Bay, a sea passage extending between N. America and Green-It communicates with the land. Atlantic Ocean by Davis's Strait and with the Arctic Ocean by Smith Sound and Lancaster Sound. It is about 800 m. long, with a mean breadth of 280 m. It was called after William Baffin, the pilot of an expedition commanded by Bylot which double. There are sev. forms of B., discovered the neighbouring lands in the most usual being: (a) ordinary 1616. The whale and seal fisheries B. In this game each player sends all the ball to the second serious control of the second seri discovered the neighbouring lands in 1616. The whale and seal fisheries are an important feature. Other animals are the walrus, ducks, seabirds, and on the coast-land bears and foxes.

Baffo, or Baffa (a Venetian corrup-tion of Paphos), a seaport in the west of Cyprus, an important town in Rom. times, see Acts xiii. Called also New Paphos, to distinguish it from an older town, now in ruins, built

by the Phœnicians.

Bafulabe, a Fr. military station in the Sudan, on the R. Senegal, W. Africa. It has a large fort, and is of considerable commercial importance.

Pop. 4000.

Bagagem, a tn. of Brazil in the prov. of Minas Geraes, on the R. Bagagem. Diamonds are to be found in the sur-rounding district. Pop. about 10,000. Bagalkot, a tn. in the Bijapur dist.

of Bombay on the R. Ghatprabha, trib. of the Kistna. Its manufs. are

Bagamoyo, a scaport at the mouth of the Kingani R., in Ger. E. Africa, facing the south of Zanzibar. It has no natural harbour, ships having to lie about two miles out, nevertheless it has considerable trade, being the entrepôt for caravan trade with the great lake dist. This has led to its being taken as a starting-point by including sev. famous explorers, Burton, Speke, and Stanley. 18,000.

The dist. round, also called B., has a very mixed pop., both Africans and Asiatics, who are mainly engaged in growing tropical fruit. Cocoa-nuts do well, and there is a considerable

export of copra.

Bagasse (Fr.), sugar trash; the crushed stalks of the cane after all the juice has been expressed. Used as fuel.

Bagatelle (Fr., from It. bagatella, a trifle): 1. A thing of no importance.
2. A game, possibly derived from billiards. It is played with balls on a board or table. a board or table varying in size from 6 ft. by 1½ ft. to 10 ft. by 3 ft. The bed, either slate or wood, is covered with green cloth, and has at its upper end nine numbered cups to receive the balls. Round the sides there is an india-rubber cushion. The balls used are nine in number, generally one black, four red, and four white; the black bell is also and four white; the black ball is placed on a spot about 9 in. in front of the first hole, and at the player's end, about 18 in. up. there is a balk line, with another spot behind it from which to start play. These measurements, of course, vary with the size of the table. The balls are struck with a cue, as in billiards,

the balls up; no score is allowed until the black ball has been touched. (b) Fr. game. Two players, or four in partnerships, take part, playing alternately. The rules as to scoring vary slightly in different forms of this game. (c) Cannon game. This more resembles billiards, and may be played with either cups or pockets. or both. (d)Mississippi. Played with a bridge having nine or more numbered arches (according to the size of the table), through which the balls must be played off the cushion. a vilayet Bagdad, of

Turkey. Area 42,643 sq. m. The country is watered by the Euphrates and the Tigris, but the soil is, in general, poor and unproductive.
There is a mixed pop. of Turks, Arabs,
Jews, Armenians, and Kurds, the
number of which is estimated at
852,000. Capital, Bagdad.
Bagdad, an old Mohammedan city,

once renowned for its learning and culture, for its extensive, flourishing trade, for its minarets and gardens. and for the Eastern splendour of the life within its palaces. The modern tn. is situated on the eastern bank of the Tigris, and is connected with the old tn. on the opposite bank by two pontoon bridges, 650 ft. and 715 ft. long respectively. It is enclosed by an old brick wall, half in ruins, and a dry moat. The tn. is still visited for its ruined mosques and far-famed bazaars, and countless pilgrims pay their ann. tribute to the anct. tombs. Many nationalities congregate within its walls, Arabs, Turks, Jews, Persians, Armenians, Hindus, Syrians, and Kurds. The religious bodies that predominate are Mohammedans, Persia passes through B. to Mesopotamia, and is carried partly by boat and partly by caravan. Leather, silk, cotton, and woollen goods are manufactured in the tn.; the prin. exports are leather articles, woollens, oriental fabrics, fruits, dates, skins. feathers, and horses. 762-66 the tn. was built by Abu

Jaffar 'Al-Mansur,' the 'Victorious, the second calif of the Abbasside dynasty, who founded it on the ruins of Seleucia and Ctesiphon. It was enlarged by Haroun-al-Raschid, and for 500 years remained the cap. of the Abbasides, during which time it reached the height of its prosperity and harboured a million and a half people within its walls. It was called Dar es Selam, the 'Dwelling of Peace.' 1258 Hulaku subjugated the and the object is to drive them into Abbasides; 1393 the city was cap-

tured by Timur. century Shah Ismail, the founder of the Persian Sofi dynasty, took pos-session for a time, but the Turks and Persians repeatedly struggled for the city. In 1638 it was annexed to the Ottoman Empire by Amurath, and still remains the cap, of the Turkish province of Mesopotamia. Pop. esti-

mated at 145,000. Bagdad Railway. The B. R. or Euphrates Valley Railway scheme to construct a line from Konieh, in Asia Minor, to B. and Basra, and thence on to the Persian Gulf, was again brought forward for discussion in 1899. Russian and British proposals were rejected, and by a provisional con-vention preference was given to a Ger. company in 1903. England had a particular interest in the proposed scheme, as the line suggested would provide a short route to India: accordingly in 1903 the British gov. objected to the railway being placed under German control, and discussion followed with a view to putting the line under international control. the agreement of 1903 it was decided the geregene of 1903 to was used as the Ger. group should control 40 per. cent of the cap., the Fr.. through the Imperial Ottoman Bank, 30 per cent., the Austrian, It., Swiss, and Turkish 20 per cent., and the Anatolian Railway 10 per cent. In 1904, 124 m. of the line were completed, from Konieh, through Eregli, to Bugurlu. In 1908 sanction was given to extend the line eastwards from Bugurlu across the Taurus to Adana. At present very little has been accomplished, but it is expected that when the line, with its branches, has been completed, the length of the railway will be some 1600 miles. Bage, a tn. of Brazil, in the state of

Rio Grande do Sul, on the R. Negro, a trib. of the Paraguay. Pop. 23,000.
Bagehot, Walter (1826-77), Eng.
journalist, economist, and political writer. He was the son of a banker Langport, Somerset, took his degree at London University, and was called to the Bar in 1852, but gave up law for literature, while retaining for many years a close connection with banking, which gave practical value to his economic studies. In 1858 he married Miss Wilson, daughter of the first editor of The Economist. Being in touch with many leaders in political and commercial life, including Mr. Gladstone, Sir George Corne-well Lewis, Mr. Robert Lowe, and prominent city bankers and merchants, he developed a remarkable Sedgeley Park, St. Edmund's College, faculty for 'seeing things from the inside,' and wrote on politics and finance not as a mere theorist, but as one acquainted with their innermost working. His books, The Eng. Wiseman, monsignore to Pope Gre-

During the 16th lish Constitution and Lombard Street show not only observation but deep research into the principles of gov, and finance. The theory of a practical banking reserve is developed by him with great clearness. His Physics and Politics, pub. in 1869, was remarkably successful abroad as well as at home. He was for many years editor of *The Economist*, and also helped to edit the *National Review*. His *Literary Studies* and Economic Studies were pub, after his death.

Bagelen, a prov. of Java, E. Indies, bound by the Indian Ocean on the S.; pop. 1,500,000.

Bagford, John (1650-1716), a collector of rare books. He was b. in St. Anne's par., Blackfriars, and began life as a shoemaker. He acquired a taste for rare books and prints which he collected with great avidity with a view to publishing a history of printing. In 1707 he pub. a prospectus for this work, but it was never accomplished. He formed two collections, known as the 'Bagford Ballads,' in which many old English ditties have been rescued from oblivion. They were ed. by the Rev. J. W. Ebsworth (2 vols., Hertford, 1878) for the Ballad Society. His collections of folios and prints were bought by Lord Oxford and are now to be found in the British Museum. He was one of the revivers of the Society of Anti-quaries, and addressed a letter to Hearne on London antiquities, which has been pub. in Leland's Collectanea, vol. i, See Dibdin's Bibliomania, pp. 430-7.

Baggaras, a Mohammedan race of Bedouins who dwell in the valley of Their chief occupation is the Nile. cattle-rearing.

Baggesen, Jens (1764-1826), Danish poet, b. at Korsör, Denmark, d. at Hamburg. While a student at Copenhagen, he pub. Comic Tales, 1785. In 1811 he was appointed professor of the Danish language and literature at Kiel, but after three years returned to Copenhagen. He evenweld a sith Cohleaning. Hamburg. quarrelled with Oehlenschläger, and in 1820 left Denmark and nover returned. He wrote much in German as His most importwell as in Danish. ant works are Labyrinthen, 1792, and Parthenais oder die Alpenreise, 1804. B. excelled in serio-comic satire, but his work often contains passages and

lines of great beauty and pathos. Baggs, Charles Michael (1806-45), an Eng. Catholic bishop, educated at Sedgoley Park, St. Edmund's College.

gory XVI., and bishop of Pella, 1844. He wrote the lives of Roman artists He was appointed vicar-apostolic of who flourished between 1572 and the western dist, of England, and pub. 1642. works on religious controversy and ecclesiastical archæology.

Baghal, or Baghul, a small native state in the Punjab, not far from Simla. Area 124 sq. m.; pop. 25,000.
Baghelkand, a dist. in the N. of Central India, including sev. native states, of which the chief is Rewa; others are Nagode, Mahar Sohawal, and Kothi. Until 1871 they were included in the Bundelkand agency. Area 14,000 sq. m.; pop. 1,500,000.

Bagheria, or Bagaria, a tn. at the castern end of the Bay of Palermo, Sicily, once the favourite residence of the chief Palermitan families. much decayed. Pop. 18,000.

Baghermi, or Bagirmi, a country in Central Africa, bounded on the W. by Bornu and Lake Tchad, and on the N. and E. by Wadaï, to which it is subject. The country is for the most part a fertile plain, well watered by the Shari R. and its tributaries. The majority of the inhabitants are negroes, though there are some Fulahs and trading Arabs; they wear little clothing, and, though Mohammedanism was introduced in the 16th century, appear to be ignorant and grossly superstitious. They have, however, a well-disciplined army and regular gov. in the cap., Maseña. By the Anglo-German agreement of 1893. the country was recognised as being in the Ger. sphere. Area about 71,000 sq. m. Pop. estimated at 1,500,000.

Baghistan, see Behistun.
Bagimont's Roll, originally named from Bagimund di Vicci, or Vitia, who was sent by Pope Gregory X. to assess the church revenues of Scotland for the purpose of raising a crusading fund. A.D. 1274. The Scotch clergy wished to retain the old assessment as a basis, but Bagimund, under Pope Gregory's instructions, insisted on a new return, founded on the real value at the time of inquiry,

1275. Part of this return has been preserved, and is known as B. R. Baglioni, Cesari, b. at Bologna. An Italian painter, studied under his father, an artist of little note. Became a disciple of the Caracci, whose style he adopted particularly in landscapes. He excelled in historical subjects as well as in paintings of animals, fruit, and still life. His best known works are the 'Ascension' and a picture of St. Anthony and Martha. Died at Parma about 1596.

Baglioni, Giovanni (1594-1644), b. at Rome. An Italian painter, studied under Francesco Morelli. His patron was Pope Paul V., for whom he exe-cuted frescoes for churches, and in

Baglivi, Giorgio (1669-1707), b. at Ragusa, Sicily. An Italian physician, studied at Salerno, Padua, and Bologna, and in 1692 went to Rome and became professor of anatomy and medicine at the college La Sapienza, where he died. Pub. De Fibra Mortice, in which he expounded his theory of 'solidism' as opposed to Galenism or humorism.

Bagnacavallo, an old town in Emilia, Italy, 11 m. W. of Ravenna. Formerly called Tiberiacum. Pop. 15,000.

Bagnacavallo, Bartolomeo (1484-1542), an Italian painter, native of the above; real surname, Ramenghi. He was a pupil of Raphael, and leader of the 'Bolognese 'school.

Bagnara, a tn. in the prov. of Reggio di Calabria, Italy, nearly opposite Messina. Founded by the famous Robert Guiscard, Duke of Apulia and Calabria, in the 11th century; suffered from earthquake in 1783, and in the great shocks of Dec. 1908, almost every house was laid in ruins.

Bagnères-de-Bigorre, a wateringplace in the dept. of Hautes-Pyrénées, France, situated on the Adour. Romans called it Aquæ Bigerrionum or Vicus Aquensis. There are many springs of sulphate of lime, and the town is visited by numerous invalids

and tourists. Pop. (1906) 6661.

Bagnères - de - Luchon, a popular watering-place in the dept. of Haute-Garonne, France, near the Spanish frontier. There are 48 mineral springs which are visited annually by about 36,000 persons. The Romans knew it as Balneariæ Lixoviensis. (1906) 3448.

Bagnes, the name given to the Fr. convict prisons which were substituted for the galleys in 1748. As the latter had naturally been stationed at the naval ports and arsenals, the B. were estab. in the same localities, and remained until the middle of the 19th century. About 1852, the last three, at Brest, Rochefort, and Toulon, were closed, and convicts were deported to Cayenne. The miseries of prisoners in the B., like those of galley-slaves, were extreme, and have often been described by writers of fiction. Jean Valjean, in Hugo's Les Misérables, was a sufferer there. The word bagnes is said to be derived from the Italian 'bagnio' (q.v.).

Bagnes, Val de, a valley in the W. of Switzerland, canton Valais. Its lower end opens into the valley of the A terrible Rhone, near Martigny. catastrophe occurred here in 1818: the R. Dranse was for two months consequence obtained a knighthood, completely blocked by falls from the Getroz glacier; when the ice-dam | ment from the primitive reed-pipe. burst the valley was devastated by a

flood 90 ft. deep.

Bagni di Lucca, a commune of Lucca, Italy, noted for its warm springs, temp. 98° to 130°, which give off CO2, and contain lime, magnesium, and sodium. These springs are in the Val di Lima, and are mentioned as far back as 1284, but were first made widely known by the celebrated physician Fallopius, in 1569. Chief resorts, Ponte Serraglio (pop. 1300) and Bagno Caldo.

Bagni di San Giuliano, a tn. of Tuscany, 5 m. from Pisa, Italy. It has mineral springs and manufs. soap and

candles. Pop. 21,000.

Bagnio, an Italian word signifying a bath, also used in other senses. The B. at Galata (Constantinople) was a place of detention for slaves: in London (18th century) a B. was a house of ill fame.

Bagno a Ripoli, a vil. 5. m. from Florence, with warm baths. A favourite residence of wealthy Florentine

families.

Bagno in Romagno, a watering-place 35 m. E. by N. of Florence, on the R. Savio, near its source; has hot springs (about 110°) containing natron.

Bagnoles, a vil. in Orne, France, 13 m. S.E. of Domfront. It has hot

and cold mineral springs.

Bagnolet, a Fr. vil. in the Seine dept. It has gypsum-quarries and fisheries. Pop. 9000.

Bagnols-les-Bains, a vil. in the dept. of Lozère, France, 8 m. from Mende. It has mineral springs of considerable

local reputation.

Bagnols-sur-Ceze, a tn. in the dept. of Gard, France, on the R. Cèze, a trib. of the Rhone, 13 m. N.E. of Uzès. The silk-mills, built on the banks of Cèze, are the chief industrial feature of the town. Fine wines are also produced. There is a handsome ' place,' surrounded by arcades and adorned with a fountain. It is supposed that the Roms, had baths here, as some anct, monuments have been found from time to time. Pop. (1901) 4179.

Bagnone, an Italian tn. in the prov. of Massa e Carrara, at the foot of Mt.

of Massa e Carrara, at the Orsajo. Pop. about 1000.

Bagoas (Persian Bagoi), a name The eunuchs. The best known of these (called by Josephus, Bagnoses), was vizier of Artaxerxes III., and practically master of the Persian kingdom. He murdered two kings in succession, and tried to poison Darius III., but the king was warned, and made B. drink the poison himself. See Josephus and Diodorus.

Bagpipe, a musical instrument of very ancient origin, being a develop-

Its essential characteristics are the bag for the wind-supply and the peculiar 'drone' which furnishes the ground bass. The former may be inflated either by a blow-pipe, as in the Highland B., or by a bellows worked by the arm, as in the musette (Fr.) and the Northumbrian pipes. Every instrument has these principal parts: (1) the wind-bag; (2) the chanter, or melody-pipe, which always has a double reed, and lateral holes for fingering; (3) the drones, which have each but one invariable sound, but can be tuned by means of sliding joints. The compass of the chanter ranges from pine notes in the High ranges from nine notes in the Highland pipes to twelve in the Irish and fifteen in the Northumbrian. musette, as improved by Hotteterre in the 17th century, had a much wider range, and was very popular at France, being played at court and in the opera; Sully wrote special music for it. In listening to a Highland pipe it will be observed that the notes of the chanter do not correspond with those of the diatonic scale, and are not strictly in tune. The same note cannot easily be repeated without the interpolation of grace notes, known as warblers; these, introduced to overcome a difficulty, form one of the chief beauties in pipe-music, liance in his warblers' being one of the distinguishing marks of a skilful The B. is suitable both for player. solemn funeral marches and laments and for the liveliest dances, and is wonderfully inspiriting, both in war and festivity, to those races whose national instrument it is. As for its antiquity, a drone-pipe with reed complete has been found in an Egyptian mummy-case; and it has been asserted that the 'dulcimer' of Daniel iii. should be 'bagpipe.' This is not proven, but it is curious that the original word sumponya is very like the name sampogna, by which the B. was known in Italy during the middle ages. The Roms. had pipes and introduced them into Southern Britain, whence they spread into Caledonia and Ireland, and survived there after they died out in England. They are mentioned in Ireland as early as (possibly) the 5th century. The modern Irish 'unioncentury. pipe,' like the musette, is blown by bellows worked by the arm. The old Ger. dudelsack was made in sev. forms varying in their range: one is said to have had separate chanters, on which a two-part melody could be played. Bagradas, now called Medierda or Mejerda, an African riv., which rises in the Great Atlas and flows in a north-easterly direction into the Gulf of Tunis. Its length is nearly 300 m.

Armenian history, founded in A.D. 885 by Aschod I., who claimed to be descended from King David of Israel. Armenia was then a trib. kingdom under the caliphate. The rule of the B. was for two centuries prosperous; some fine ruins of their cap., Ani, still remain. In the 11th century, owing to civil war, the Armenian kingdom broke up, the Byzantine empire appropriating a share, and the Turks the remainder. The B. retired to Georgia (conquered by them c. A.D. 1000), and ruled there until 1800, when Georgia was annexed by Russia.

Bagration, Peter Ivanovitch, Prince (1765-1812), Russian general, descended from the Georgian branch of the Bagratidæ. He entered the Rusthe Bagratide. He entered the Russian army in 1782, took part in the siege of Ochakov, 1788, and served under Suvarov in Poland, Italy, and Switzerland. In 1805, covering the retreat of Kutusoff's army before superior numbers under Murat, he showed great skill and courage, losing half his men, but saving the main army. He had the experience of serving in sev. lost battles, Austerlitz, 1805, Eylau, and Friedland, 1807, but always won great personal distinc-tion. In 1808 he marched an army across the frozen Gulf of Finland to capture the Aland Is., and in 1809 commanded against Turkey. When Napoleon invaded Russia in 1812 B. commanded the second Russian army. As before he was unsuccessful, being beaten by Davout at Moghilev, July 23, but succeeded in rejoining the main force under Barclay. On Sept. 7 he was mortally wounded while striving to repel Ney's assault at Borodino.

Bagshaw, Edward (d. 1662), an Eng. royalist and author. Graduated at Brazenose College, Oxford, 1608, and entered the Middle Temple. In 1639 he was elected Lent reader, and delivered lectures in favour of Puritan principles. He was elected M.P. for Southwark, 1640, and sat in the parliament convened by Charles I. at Oxford, 1644. He was taken prisoner by the parliamentarians, 1644-6, during which time he wrote DeMonarchia Absoluta and other treatises on political and religious questions.

Bagshot Sand forms part of the Upper Eocene strata found round London, especially in Surrey, and stretching as far S. as the Isle of Wight. The heaths of Surrey and

Hampshire belong to this formation.

Bagster, Samuel (1772-1851), founder of the publishing firm of Samuel Bagster & Sons; he began as a bookseller in the Strand in 1794, and in 1816. 1816 removed to Paternoster Row.

Bagratidæ, a line of monarchs The firm is famous for its editions of forming the 'third dynasty' in polyglot Bibles, including the Biblia in polyglot Bibles, including the Biblia
A.D. Sacra Polyglotta Bagsteriana, 1817b be 28, for an octoglot ed. of the Church of England liturgy, 1821, and for The English Hexapla, 1827. It has also published lexicons in many languages.

Baguette, or Baguet (Fr. a small wand), a term used in architecture for a small convex moulding of semi-circular section of the same type, as the astragal. When ornamented it is called a chaplet.

Bagul, see Baghal.
Bahamas, formerly called Lucayos,
a group of is. forming a div. of the
British W. Indies. They are situated in the Atlantic Ocean, lying to the S.E. of Florida, and N. of Cuba and Hayti. There are about 3,000 is. in all, including coral reefs, but only twenty are inhabited. The prin. is, are New Providence, Great Bahama, Abaco, Cat Is., Harbour Is., Andros Is., Acklin Is., Watling's Is. Eleuthra, and Mariguana. The area is about and Mariguana. The area is about 4400 sq. m., but it has been estimated up to 5450 sq. m. The is. are long and narrow in shape, and of a low surface, the highest alt. being not more than 230 ft. The climate is so temperate that the is. have come to be a popular winter resort for Americans. There is excellent pasture land, and the soil is fertile. The chief agric. products are maize, cotton, corn, oranges, pine-apples, bananas, tomatoes, grapes, tamarinds, olives, The sugar-cane is cultiand spices. vated, and there is valuable timber. A large quantity of sponges is found along the shores. The constitution consists of a governor, assisted by executive and legislative councils of nine members each, and a representa-tive assembly of twenty-nine. All white men over twenty-one who have resided twelve months in the is. have a vote. The cap is Nassau, New Providence. The B. were visited by Columbus in 1492, but his exact landing-place is not known. The Spaniards did not consider the land suffiiards did not consider the land sufficiently productive to warrant a colony, but they depopulated them by carrying the Indians away as slaves. In 1629 the English made a settlement on New Providence, but were driven out by the Spaniards in 1641. From 1641 the is, were held alternately, by Britich and Spanish alternately by British and Spanish colonists, according to the vicissitudes of war, until finally they came under British sway by the treaty of Ver-sailles, 1783. During the American War, Nassau increased greatly in importance, through its being used as a station in the blockade-running trade. To encourage trade, it was made a free port in 1787. The B. have been visited by disastrous hurricanes,

notably in 1866 and 1883. Certain when it was held by Holland, 1624). interesting remains, such as stone hatchets and utensils for domestic use, belonging to the aborigines of the is., have been found. Some of the inhab., known as 'wreckers,' make a living by piloting distressed vessels through the numerous reefs and shoals that surround the is., and by rescuing salvage, of which they are allowed a legal share. Among the religious sects of the community Wesleyans and Baptists predominate. The Church of England was disestablished in 1869. Pop. (1901) 53,735. In 1908 it was estimated at 60,283, of which the majority were negroes.

Bahar (district), see BEHAR.

Bahar (town), see Behar. Bahawulpur, a native state in the Punjab, under British supervision. The dist. round the Ghara and the Indus is very fertile in all kinds of grain and fruit. Big game, such as tigers and boars, abounds. Other animals are camels, cattle, buffaloes, and goats. Area 17,285 sq. m.; pop. (1901) 720,700. The cap. has the same name as the state. The manuf. of turbans, silk girdles, scarves, chintzes, flowered cottons, etc., is the chief industry. Pop. (1901) 18,716.

Bahia, an eastern prov. of Brazil, bounded on the N. by the states of Pernambuco and Piauhy, on the S. by Minas Geraes, on the W. by Goyaz, and on the E. by the Atlantic Ocean. The land by the coast is fertile and woody, the climate being hot and moist. The interior is rocky, with plateaus rising in terraces, and the climate is dry. The country is watered by the R. Sao Francisco and its tribs. The prin. products of the soil are sugar, tobacco, coffee, cotton, Indian corn, and rice. Rubber trees have been cultivated of late, and there are whale fisheries along the coast. Area

164,649 sq. m.: pop. (1893) 2,000,000.
Bahia, or São Salvador da Bahia, cap. of the state of B.; see of an archbishop, and a university tn. well as the university, there is a medical college, a normal school, a museum, and a magnificent public library. Scaport, with a flourishing shipping trade. There is a fine harbour, protected by the natural breakwater formed between the Is. Itar-parica and the mainland. The chief parica and the mainland. The chief industries are boots and shoes, hats and cotton materials, which are exported along with agric. produce, hides, and jute-wares. The city was visited by Amerigo Vespucci, 1503, and again by Correa, a Portuguese, in 1510. It was colonised in 1536 but abandoned, and refounded, 1549. Bahramghat, a vil. in the United Up till 1824 it belonged to the Portuguese (except for a brief period is here crossed by a bridge of boats.

and then proclaimed its independence. Pop. (1902) estimated at 230,000.

Bahia Blanca, a city 3 m. up the R. Naposta, prov. of Buenos Ayres, Argentina. Its port on B. Bay has been much handicapped by a shallow channel, but dredging operations are expected to maintain a minimum draught of 30 ft. B. B. was founded in 1828; its prosperity dates from 1885, when the first railway was opened. It exports wheat, wool, and hides. The naval station of Puerto Militar lies just below the city. Pop., B. 12,000; including port, 70,000.

Bahia de Todos os Santos, see All.
SAINTS' BAY.

Bahia Honda, a seaport in the N.W. of Cuba, about 50 m. from Havana; trades in sugar and mining products. Its harbour is one of the deepest and

most spacious in Cuba. Pop. 1300.
Bahlingen, a tn. and dist. in the region
of the Black Forest. The dist. lies of the Black Forest. The dist. lies along the vale of the R. Eyach, and is noted for its sulphur baths.

Bahr, an Arabic term meaning sea. or large riv., as Bahr-el-Abiad and Bahr-el-Azrek, the White and Blue Nile. A dry river-bed is sometimes called Bahr.

Bahr, Johann Christian Felix (1798-1872), Ger. philologist, was b. at Darmstadt, and educated at the Gymnasium there and at Heidelberg University, where in 1823 he was appointed professor of classical philology. His works include Geschichte der romischen Litteratur, a standard book on the subject, and sev. vols. on the Christian poets, historians, and theo-logians of Rome, also on the literature of the Carolingian period. He brought out an excellent edition of Herodotus.

Bähr (or Bæhr), Karl Johann (1801-69), a painter of portraits and his-torical subjects. He was b at Riga, studied under Matthæis in Dresden, studied under Matthæis in Dresden, and travelled in Italy. He later settled in Dresden and was appointed professor at the Academy of Fine Art, 1840. The following paintings may be mentioned: 'Portrait of Julius Mosen,' 'Christ on the Cross' (at Zchopau), 'Iwan the Cruel of Russia, warned of his death by a Finnish Magician' (1850, in the Dresden Gallery), and 'Virgil and Dante.' Bahraich, a tn. of Oude, on the R. Sarju; has a sacred shrine much

Sariu: has a sacred shrine much visited by pilgrims. Pop. 27,000. The dist. of B. has an area of 2600 sq. m. Pop. over a million.

Bahramabad, a Persian tn. in the prov. of Kerman, noted for its fields of poppies; pop. about 13,000.

very deep, and utterly dry and barren, but has been a watercourse. assert, on the strength of a passage in Herodotus, that a branch of the Nile once flowed here.

Bahrdt, Karl Friedrich (1741-92), Ger. theologian and profligate, who had a most extraordinary career. Son of the pastor of Bischofswerda, he was much neglected in his boyhood, and when he became a theological student, though clever, ambitious, and eloquent, he displayed a strangely warped character. After rising to considerable eminence as lecturer, preacher, and professor of biblical philology at Leipzig, he was abruptly dismissed on account of his scandalous private life. He succeeded in obtaining an unpaid professorship at Erfurt; to maintain himself he took pupils and kept an inn, but his recklessness and coarse behaviour brought about another failure. He was, however, still reputed so orthodox that he got an appointment as professor of theology at Giessen; here, in addition to his private excesses, he pub. a so-called Translation of the New Testament, so scurrilous that the authorities expelled him. After some years of wandering and privation he settled in Halle, got permission to lecture on anything except theology, and set to work to invent a new system of morality which should supersede supersede Christianity. He also cast off his wife, taking a mistress instead, and turned once more to inn-keeping. In 1789, being sentenced to two years' imprisonment, reduced by the king to one, for writing against the goy., he spent his time in compiling indecent stories and a disgraceful autobiography.

Bahrein Bay, on the E. coast of

Bahrein Bay, on the E. coast of Arabia, noted for its pearl fisheries.
Bahrein Island, the largest of a group at the mouth of B. Bay; it is 27 m. long by 10 m. wide, flat on the whole, but having in its centre a rocky hill, Jebel Dukhan. The chief town of B. is Manameh. The next largest are Moharek, situated on a neighbouring smaller island, and Sittah. The whole group is fertile, prorah. The whole group is fertile, pro-ducing rice, herbs, and fruit; fish are abundant, and the pearl fisheries of B. have been famous for centuries. The islands, which have belonged to many nations in turn, are now under British protection, and are governed by a sheik. On B. itself there is an immense collection of huge sepul-chral tumuli, enclosing tombs of limestone; some of these have been

It trades in timber and furniture. Pop. 3000.

Bahr Bela Ma, or 'The Waterless Sea,' a valley in the Libyan desert, 50 m. W. of Cairo. It is 9 m. long, mixed race, mainly Persian and Arab.

mixed race, mainly Persian and Arab.

Bahr-el-Abiad, or White Nile, in
Africa, rises from Lake Victoria
Nyanza, and is one of the chief
branches of the main Nile. It is the Upper Nile, joined at Khartum by Bahr-el-Azrek. Itslowsthroughabout 2300 m. of flat marshy country, and is fed by the trib. riv. Sobat on the E., and Bahr-el-Ghazal on the W.

Bahr-el-Azrek, see Azrek.
Bahr-el-Ghazal: 1. A western trib.
of the White Nile (or Bahr-el-Abiad),
which it ioins at Sobat. This riv. is largely responsible for the floating vegetation, called the sudd of the Nile. It gives its name to the dist. of Sudan through which it flows, which was formerly leased to the Congo Free State, but now, since 1906, comes under the British sphere of influence. 2. Another riv. of the Sudan, which rises in the eastern end of Lake Chad, and flows in a northeasterly direction, until it spreads out into the marsh or lagoon of the

Bodele. Bais, or Baj, Tommaso (d. Bai, Bais, or Baj, Tommaso (d. 1714), Italian musician and composer, was born near Bologna in the second half of the 17th century, and became master of the chapel of the Vatican. He is celebrated on account of his beautiful Miserere. His death took place in Rome.

Baiæ, or Baja, a sm. tn. Campania, with grand ruins, 10 m.W. of Naples. In Rom, times it was a renowned watering-place, with warm sulphur springs: it had immense baths and palatial residences, and was a favourite resort of the Cæsars. Nero built a fine villa here, and Hadrian died in one that had belonged to Julius Cæsar. B. had from early times a disgraceful reputa-tion for immorality; Cicero once apologised for defending a man who had lived there. The littoral is strewn with foundations and remains of walls. The most notable relics of antiquity are the temples of Venus,

Mercury, and Diana.

Baiardi (or Baiardo), Ottavio Antonio (c.1690-c.1765), Italian antiquarian, was b. at Parma. His genius was recognised by Charles III., who made him decipher some monuments of Herculaneum. His single known pub. work was the Prodromo dell' antichila d'Ercolano, 1742. Baiburt, a tn. of Turkish Armenia,

on the Tchoruk-See, about 65 m. W.N.W. of Erzerum. It has an imposing castle, and there are manufs. of carpets and cutlery. Pop. (esti-mated) 10,000.

Baidyabati, a tn. of Bengal, India

on the Hugli, opposite Barrackpur, close Lake Baikal, Siberia, but proand 15 m. N. of Calcutta. There are manufs, of jute and hemp rope. Pop. (estimated) 20,000.

Baiersbronn, a tn. of Würtemberg. Germany, in the region of the Black Forest, dist. Freudenstadt;

(1900) 6414.

Baif (or Bayf), Jean Antoine de (1532-89), a Fr. poet, born at Venice. He studied under Ronsard, and made particular progress in Gk. He was a member of the Pléiade, and attempted to write Fr. verses with cadence and accent of Gk. and Lat. poetry. These verses he set to music, and in 1561 pub. Twelve Hymns or Spiritual Songs, and in 1578 sev. books of songs. He founded an 'Académie de poésie et de musique,' 1567-84, in Paris, which was the first of its kind. His poems were pub. in two vols., Eurres en rime and Les Jeux, in 1573 at Paris, and consist of serious, comic, and sacred pieces. His Poésics choisics have been ed. by Becq de Fonquières, 1874, and his Mimes, enseignements et proverbes, by Blanchemain, 1880. See Nagel, Die Metrischen Verse J. A. de Botjs, Leipzig, 1878. Baigorry, Valley of, in the Basses-Pyrénées, France, contains copper

and iron mines; the former date back to Roman times. Prin, town, St.

to Roman times. Etienne de Baigorry.

Baikal, the largest fresh-water lake in Asia, situated in Southern Siberia on the border of Irkutsk and Transbaikalia, called the 'Holy Sea 'of the Mongols, and said to be the deepest lake in the world. It is 390 m. in length, and 20-50 in breadth, the area being 12,500 sq. m. The greatest depth is 4500 ft., the lake being 1513 ft. above the sea-level. Its chief tribs, are the Selenga and Bargusin, and its outlet the Lower Angara, a trib. of the Jenisei. There are many is., the largest of which is the Olkhon. The largest of which is the Olkhon. lake is surrounded by the B. Mts., a spur of the Altai. The fishing industry is very important, the prin. fish caught being sturgeon, salmon, and seals. A curious fish called the golomynka (Comephorus Baicalensis) was once found in great quantities, but is now very rare. It consists but is now very rare. It consists almost entirely of fat, which, melted down, can be used for train-oil. Many wild animals are found on its borders, such as deer, elk, musk-goat, otters, gluttons (Ursus gulo), lynxes, foxes, and wolves. The neighbouring The lake is covregion is volcanic. ered with ice from November to April, but traffic between Russia and China continues all the year round. settlers on the shores are Russians, Buryats, and Tunguses.

Baikalean Mts., a name sometimes applied to all the ranges which en-

perly belonging only to those on the western side. They are about 500 m. in length, and average 3000 ft. in Granite and marble abound, and there is much iron ore; lapislazuli is also found. The people of this region are the Buriats.

Baikie, William Balfour (1824-64). Scottish explorer and naturalist, was b. at Kirkwall, Orkney. Obtaining his M.D. degree at Edinburgh in 1848 he became a surgeon in the royal navy, and in 1854 was appointed surgeon and naturalist to the Pleiad expedition, sent to explore the Niger. The chief officer dying, B. took command, and succeeded in going 250 m. further than any previous explorer, without losing another man. 1857 he again went out in the Pleiad; the ship was wrecked up the Niger, and his party returned home, but he remained in the country, and single-handed laid the foundation of our present colony of Nigeria. obtained such influence over natives as only once in seven years to have recourse to arms. He studied many native languages, and trans. parts of the Bible into Haussa. He died at Sierra Leone, on his way

home, in 1864.

Bail, in law, when a person is charged with an offence he may be released on security given by one or more persons, usually householders, that he will appear at the trial. is then on B., or in the B., custody of the person giving B. security. If he fail to appear, the B. is forfeited. If the sureties think the bailed person will not appear, they may surrender him, and be relieved of liability. A justice may now dispense with sureties and release the accused on his own recognisances if he be of opinion that justice will not be defeated. In felonies other than treason and in certain misdemeanours the magistrate may in his discretion admit to bail, but is not obliged to do so. In all other misdemeanours and in all summary cases the magistrate is bound to admit to B. practice, however, B. is never allowed in a charge of murder, or in misdemeanours where the costs of prosecution may be allowed out of the county rate. In treason it can only be granted by a judge of the King's Bench Division or a secretary of state. The police may grant B. if, on state. arrest without warrant, the prisoner cannot be tried within twenty-four In Scotland (Bail Act, 1888), hours. murder or treason are the only non-bailable offences. The High Court and the lord advocate can admit to bail.

Baildon, a tn. in the W. Riding of

Yorkshire, England, 4 m. N. of Brad-ford, in the Otley div. There are sev. summit of Mt. Misti, the highest industries, including worsted mills and chemical works. Pop. (1901) 5797.

Bailen, or Baylen, a tn. in the S. of Spain, 21 m. N. of Jaen. Here Dupont with 17,000 Fr. soldiers had to surrender to the Spaniards in 1808. Bailen is a mining centre. Pop. 7500.

Bailey, that part of a castle or fortress lying round the central keep; sometimes there are two enclosed spaces, the inner and outer B. The name is probably of Fr. derivation.

Bailey, Old, see OLD BAILLY.

Bailey, Nathan (d. 1742), Eng. lexicographer, and philologist.

cographer and philologist. His Dictionarium Britannicum, pub. in 1730, a great improvement on previous lexicons, went through many eds., and was taken by Dr. Johnson as the basis of his great dictionary twenty years later. B. was a schoolmaster at Stepney.

Bailey, Peter, an Eng. writer and poet. He founded the review Museum and wrote many poems, of which the best is Idwal. He died in 1823.

Bailey, Philip James (1816-1902), was b. and educated at Nottingham; in 1835 he went to London, and entered Lincoln's Inn, but did not take up the legal profession in earnest. In 1839 he published his poem Festus which had a great success here and in America. It is practically his only book, a philosophical and theological drama, with many fine thoughts and cloquent passages, but as a whole confused and to most readers even tedious.

Samuel (1791-1870), was Bailey, the son of a Sheffield merchant, and for some years took an active share in business. A liberal in politics, he twice contested Sheffield as a 'philo-cophic radical,' but without success. sophic radical,' but without success. His first book, Essays on the Forma-dion and Publication of Opinions, appeared in 1821, and a sequel, On the Pursuit of Truth, in 1829; they were both widely read. Other philosophical works were Theory of Reasoning, 1851, and Letters on the Philosophy of the Human Mind, 1856-63. He also wrote several books on economics, the chief one being a Critical Dissertation on Value, 1825—a strong attack on Ricardo's theories. philosophy he displays great clearness and originality of thought; rather a utilitarian than an idealist, he vet objects to the word 'utility' as being narrow and liable to misconception.

Bailey, Solon Irving, an American astronomer, born at Lisbon, New Hampshire, 1854. He graduated at Boston University, 1881; became associate professor of astronomy at Harvard; estab. a southern station of the Harvard Observatory at Are-

scientific station in the world, at an elevation of 19,000 ft. (1893). He has contribute? Annals of ory.

Bailey, 1. miscellaneous as a silk-hosier at Nottingham, and was a member of the town council 1836-43. In 1845 he became proprietor and editor of the Nottingham Mercury, but his politics proved distasteful to his readers and the paper became extinct in 1852. In his later years he retired to Basford, near Nottingham, and devoted his time to writing and collecting books and engravings. was the author of numerous poems. and some political and topographical works, which include Discourse on Political Revolutions, 1830; Village Reform, 1854; Annals of Nottinghamshire (4 vols.), 1852-5.

Bailie, or Baillie, a superior officer or magistrate of a municipal corporation in Scotland. They are invested with certain judicial and administrative authority within the city or burgh for which they are appointed. They are assisted by a paid legal adviser called an 'assessor.' The office is in some respects analogous to that of alderman in England, but unlike an Eng. alderman he retains his seat for the ward to which he has been appointed after selection as a B. The term of office is three years. The chief magistrate or 'provost' and one or more of the Bs. are, ex officio, in the commission of peace. There are also Bs. of regality and barony, who are appointed by the superior or over-lord of the manor. The B. of Holyrood or B. of the Abbey, appointed by the Duke of Hamilton as hereditary keeper, has jurisdiction in all civil debts contracted within the precincts. The B. who gave sasine or seisin was the person who appeared for the seller. at the ceremony of giving sasine or This practice was delivery of lands. abolished in 1845.

Bailiff. In general the word means superintendent, or keeper, one who is entrusted with a charge. Derived from Fr. bailie; cf. Lat. adj. bajulus, Derived a carrier, afterwards a carrier on, or administrator. In Constantinople the name bajulos was given to the tutor of the sons of the Gk. emperor; also to the superintendents of foreign merchants; and the word balio signified the Venetian ambassadors.

B

the sheriff's officers. Such are either | dustry is hand-made lace, and it has Bs. of Hundred or special Bs. The manufs. of woollens, linens, cheese, former are appointed by the sheriff to collect fines, summon juries, execute writs and processes, and attend at assizes and quarter sessions. The latter are men selected for their skill in hunting and apprehending persons liable to arrest. Being compelled to enter into an obligation for the due performance of their duties, they are sometimes called bound-bailiffs, or vulgarly bum-bailiffs. Special Bs. are appointed at the request of a suitor and the sheriff is not responsible for what is done by them. A B. cannot lawfully act until he has received a warrant under the hand and seal of the sheriff.

Bs. of a franchise or liberty are appointed by the lord of a liberty. They exercise jurisdiction in certain parts of the country, e.g. the liberty of Gower in Gloucestershire.

The high B. of a co: court appoints sub-bailiffs who execute process of the

court. His office is for life.

Bailiwick, a legal term used with regard to the co. or dist. with which the sheriff, as bailiff of the king, has jurisdiction.

Baillarger, Jules Gabriel Francois (1809-91), a Fr. doctor, born at Mont-bazon, Indre-et-Loire. He specialised in mental diseases, and was awarded a prize for his essay Des hallucina-tions, des causes qui les produisent et maladies qu'elles caractérisent, by the Academy of Medicine, 1842. With Longet and Cerise he founded the review Annales médico-psychologiques du système nerveux. He was awarded the medal of the Legion of Honour for his services during an

outbreak of cholera, 1849. Baillet. Adrien (1649-1706), eminent Fr. critic, born of poor parents at Neuville-au-Hez, near Beauvais in Picardy. He studied in a neighbour-. ing convent, where he was introduced to the bishop of Beauvais who assisted him in obtaining a good education. In 1676 he received holy orders and was given the vicarage of Lardières; in 1680 he became librarian to M. Lamoignon, the advocate-general. His Les Enfants devenus célébres par leurs études et par leurs écrits (Paris, 2 vols., 1688) won great popularity. His principal work is Jugements des savants s auteurs

a life of l historical works.

Bailleul, a tn. in France, arron. of Hazebrouck, dept. of Le Nord. It is an old Flemish in. and has a museum of paintings and antiquities. church of Saint Vaast and the hotelde-ville date from the 14th and 15th centuries respectively. The chief inearthenware, and soap. Pop. (1901) 11,899.

Bailleul, Jacques Charles (1762-1843), Fr. advocate and politician, was born at Bretteville, near Havre. He sat as a member of the Convention in 1792 and a year later was proscribed. He wrote a refutation of Madame de Staël's work on the Revolution in 1818, and numerous pamphlets on political and financial questions. He died in Paris.

Bailliage, a Fr. term, equivalent to illiwick. The word was used more bailiwick. especially in Switzerland of portions of ter. over which a bailiff was appointed. This officer was in charge for the police and had jurisdiction in certain civil and criminal causes. case of maladministration, appeal lay to the cantons to which the B.

belonged. Baillie, Lady Grisell (Grizel Hume), 1665-1746. A Scottish poet, born at Redbraes Castle, Berwickshire, daughter of the patriot, Sir Patrick Hume, first Earl of Marchmont, 1684 she supplied her father with food during his confinement in the vault of Polwarth

him on his c

1692 she ma B. of Jerviswood. Her ballads may be found in Allan Ramsay's Tea-Table Miscellany (1724-7). The best known of her songs is And werena my Hear licht I wad dee. Memoirs of her were written by her daughter Lady Grize, Murray of Stanhope (1693-1759). Baillie, Joanna (1762-1851), a Scot

tish poet and dramatist, born at Botle well, Lanarkshire, but went to live at Hampstead, where she died. Plays of Passion (1798-1836) ar artificial in conception and lacking in dramatic incident, but they written with vigour and a certain im pressive dignity. De Montfort had a vogue through the acting of John Kemble and Mrs. Siddons. She is a her best in simple pieces, in her song and ballads written in the Scottisl dialect.

Baillie, Matthew (1761-1823) Scottish lecturer on anatomy. Edu cated at Glasgow and Oxford universi 1787 appointed physician George's Hospital. 1789 fellor of the College of Physicians. After 1810 he acted as physician to the royal family. 1795 The Morbid Anatomy of some of the most important Parts of the Human Body had a great

influence on the study of medicine. Baillie, Robert (1599-1662), Scotch Presbyterian divine. One of the commissioners appointed to prepare charges against Archbishop Laud, 1640. The first professor of divinity at Glasgow University, 1642. Sat in the Russia with Lamare, 1805-8. In Westminster Assembly of Divines. 1814 he organised concerts for chamone of the delegates sent to the ber music in Paris with great success; continent with an offer of the Scot-toured in Holland, Belgium, and tish crown to Charles II. Prin. of England, 1815-16, and became a Glasgow University, 1661. His Let-ters and Journals, 1637-62, give an Society; director of the Paris Opera, interesting picture of the times.

Baillie, Robert, of Jer. iswood, a Scottish patriot and martyr, who has been called the 'Scottish Algernon Sidney. He opposed the tyranny of Charles II.'s favourite, the Duke of Lauderdale, in 1676, and was arrested on a charge of complicity in the Rye House plot and was unjustly condemned to death. Hanged at Edinburgh, December 24, 1684.

Baillie, Thomas (d. 1802), a British

naval officer. He served at Minorca. 1756, and was engaged on convoy service, 1757-60. In 1761 he was moved to Greenwich Hospital, and became its lieutenant-governor in 1774. In 1778 he was brought to trial for libel, having preferred charges against the internal gov. of the hospital, and his defence was undertaken by Erskine, afterwards lord chan-cellor. He was acquitted, but had been previously deprived of his office which was not restored to him. In 1782 he became clerk of deliveries. ...

n the Paris Museum have been prepared by He died at Abbeville in 1803. He was a correspondent of Buston; his chief works are: Mémoire sur les causes du dépérissement des bois et le moyen d'y remédier, 1791; Sur les sables mouvants qui couvrent les côtes du département du Pas-de-Calais et les moyens de s'opposer à leur invasion.

Baillon, Ernest Herri (1827-95), a Fr. botanist, b, at Calais, and d, in Paris. In 1864 he was appointed professor of natural history, and later professor of hygiene at the Industrial School of Art. In 1870 he ed. the Adansonia, to which he contributed many botanical articles. Author of Histoire des Plantes, 1866-85; Traité de Bolanique Médicale Phanérona-mique, 1884, etc., and a botanical

dictionary.
Baillot, Pierre Marie François de 1799; and Memoirs of the Revolution,
Sales (1771-1842), a Fr. violinist. He 1804.
was b. at Passy and d. at Paris; Bailment, a delivery of goods by received his musical education at the bailor to the recipient or bailee to Paris under Sainte-Marie, and at be held according to the purpose of Rome under Pollani, a pupil of the delivery, and to be restored when Nardini. He made his debut in the purpose is accomplished. B. is Paris in 1791, and became professor of three kinds: 1 For the baroest. studied the theory of music under without reward, and is responsible Catel, Reicha, and Cherubini. He only for gross neglect. 2. For the entered Napoleon's private orchestra, benefit of the ballec or his representain 1802, and afterwards travelled in tive. The ballec receives a gratuitous

1814 he organised concerts for cham-1821-31: and of the Royal Orchestra. 1×25. B. belonged to the classical school of violin players, and won fame as a teacher. His compositions are difficult, and have been almost forgotten, but Arl du Violon, 1834, is still regarded as a standard work. Author of Méthode de Violon (adoptod by the Conservatoire), obituary notices of Grétry (Paris, 1814), and Viotti, 1825, and other occasional writings. Consult Wasielewski, Die Fioline und ihre Meister, Leipzig. 1893.

Bailly (or Bailli), David (1584-1657), Dutch artist, born at Leyden. He studied first under his father, Peter B., but was afterwards a pupil of Jacob de Gheyn and Cornelius Vander Vort. He travelled in Germany and Italy, returning to his native tn. in 1613, where he won a reputation as a portrait painter. There is a portrait of Marie Van Reigersbergen, wife of Grotius, painted by this artist in 1624, at Amsterdam.

Bailly, Jacques (1629-82), a Fr. miniature painter, b. at Gracay (Cher). He settled in Paris and became a member of the Academy of Painting, He etched twelve plates in 1664. representing bouquets of flowers, but he distinguished himself more particularly by his portraits in miniature. His works are very rare.

Bailly, Jean Sylvain (1736-93), a Fr. statesman, astronomer, and savant. In 1784 he was elected a member of the Fr Academy, and in 1785 of the Academy of Inscriptions. In 1789 president of the Third Estate and of the National Assembly. Mayor of Paris, 1789-91. He lost his popularity and went into retirement at Melum, where he was seized, brought back to Paris, and executed in 1793 on a charge of conspiracy. 1775-87 Histoire de l'Astronomie. Pub posthumously Essai sur l'origine

Rome under Pollani, a pupil of the delivery, and to be restored when Nardini. He made his debut in the purpose is accomplished. B. is Paris in 1791, and became professor of three kinds: 1. For the benefit of of the violin in the Paris Conservathe bailor or his representative. The toire from 1795 till his death. He bailer receives and keeps the deposit

loan, which he must return, with Westminster out payment, at the end of a certain He is responsible in this case for the least neglect. 3. For the mutual benefit of the bailor and bailee or their respective representatives. This includes deposit as a security (as when goods are left with a pawnbroker, or when furniture is stored with a warehouseman), and the hiring of the use of a bailed article. He is

responsible only for ordinary neglect. Baily, Edward Hodges (1788-1867). an Eng. sculptor, b. at Bristol. Went to London in 1807 and entered Flaxman's studio. He won medals from the Society of Arts and Sciences and from the Royal Academy. He was employed by George IV. to execute the sculpture in front of Buckingham Palace and the figures on the Marble Arch. He executed a great number of busts and statues of public men, the Nelson monument in Trafalgar Square, Charles James Fox and Lord Mansfield in St. Stephen's Hall, Westminster. Among his fines works are: 'Eve at the Fountain, Eve listening to the Voice,' 'Her cules casting Hylas into the Sea, finest cules casting Hylas into the S 'Psyche,' 'Girl preparing for Bath,' and 'The Graces Seated.'

Baily, Francis (1774-1844), Eng. astronomer. In 1827 he was awarded gold medal of the nomical Society for revising their Star Catalogue. He set on foot the Star Catalogue. reform of the Nautical Almanae, 1829; 1802 Tables for the Purchasing and Renewing of Leases; 1808 Doctrine of Interest and Annuities; 1810 The Doctrine of Life-Annuities and

Assurances.

Baily's Beads, the name given to a phenomenon which is observed in connection with the total eclipses of by the sun, first fully described Francis B. (q.v.). Owing to the ef Owing to the effect of irradiation and the irregularity of the moon's edge, the crescent-shaped portion of the sun that is unobscured by the moon's disc looks like a belt of bright spots in a dark background, which may be compared to a string of beads.

Bain, Alexander (1818-1903), Scotpsychologist and philosopher. tish Educated Mariscal College, Aberdeen, 1836-40; became professor of natural philosophy in the Ander-sonian University, Glasgow, 1845; secretary of the Board of Health, He acted as examiner in 1848-50. logic and moral philosophy for the London University and for the Indian Civil Se

he was

in Abe. was made lord rector of his own university, 1881. From 1840 he connavy as a midshipman in 1799, but tributed frequent articles to the retired through ill-health. In 1800 the

Review. Chambers's Papers for the People and Information for the People. He followed in the steps of Hartley, in that his psychology was based on physiology, and he belonged to the experimental as opposed to the transcendental school. His principal works are: The Senses and the Intellect, 1855; The Emotions and the Will, 1859; Study of Character, 1861; Mental and Moral Science, 1868; Logic, 1870; Relation of Mind and Body, 1873. In addition he assisted in the editing of Grote's Aristotle and edited Grote's Minor Works; he wrote a biography of James Mill, as well as a criticism of J. S. Mill, and his educational works give valuable suggestions on the writing of English composition and rhetoric.

Bainbergs, plate armour of the 13th century, used to protect the legs.

Christopher (c. 1464-ish prelate. Bishop of Bainbridge, Christophe 1514), an English prelate. Durham, 1507; Archbishop of York, 1508. Henry VIII. sent him on an embassy to Pope Julius I., who ap-pointed him Cardinal of St. Praxede în 1511. He was poisoned by Rinaldo de Modena, a priest, who confessed that the Bishop of Worcester had instigated him to perform the act.

Bainbridge, John (1582-1643), b. at Ashby-de-la-Zouch, d. at Oxford. An English astronomer and the first Savilian professor of astronomy at the University of Oxford.

Astronomical Description He pub of Comet of 1618 (1619), and numerous other works on astronomical and mathematical subjects.

Bainbridge, William (1774-1833), an American naval officer, born at Princeton, N.J. He entered the merchant marine service at the age of fifteen; became a lieutenant in command of schooner Retaliation in 1798; was captured off Guadaloupe by the Fr.; in 1800 he was promoted to the rank of captain, and was sent on an embassy to the Dey of Algiers, who to unde

go tc m. -ed mane the Moorish frigate Mesbboha (1803), but was himself taken prisoner off He was appointed com-Tripoli. modore in 1812, in command of the Constitution, Hornel, and Essex, and captured the British frigate Java. He took charge of the Philadelphia and

Charlestown navy yards, and from 1832-5 he acted on the board of naval 1837. Life of (1786-1862),

entered the

Duke of York appointed him to an ensigney in the 20th Regiment; inspector of fortifications at Curaçoa, 1807; entered the senior dept. of the ranni Pierluigi di Polestrinn, 1828. Royal Military College at High Wycombe, 1809, where he invented prientales, 4 m. S.W. of Céret. Louis a protracting pocket sevient; deputy. a protracting pocket sextant; deputy XIV. caused a fortress to be built assistant quartermaster general in here in 1670, at the foot of which are Portugal, 1811. He took part with two mineral springs. The water is distinction in the Peninsular War and very hot, and is collected in a reseralso served in France. He commanded the forces in Ceylon, 1852-4, and was promoted to the rank of lieutenant-K.C.B.

.C.B. Baines, Edward (1774-1848), an Eng. journalist and economist, at Walton-le-Dale, Lancashire. He was apprenticed to a printer first at Preston and then at Leeds; bought the Leeds Mercury in 1801, M.P. for Leeds 1834-41, 22 cm. Leeds, 1834-41, as an independent Liberal. He advocated the reform of factory laws, Catholic emancipation, and opposed state interference in educational matters. He wrote listory, Directory, and Gazetleer of the County of York, 1823, which was enlarged as the History of the County Palatine and Ducky of Lancaster, 1868-70; and a History of the Reign of George III., 1823. See Life, 1859, by his son, Sir Edward Baines.

Baines, Sir Edward (1800-90), an Eng. politician. Elected member of Eng. politician. Elected member of parliament in 1859, and became the advocate of many reforms; he defended disestablishment of the Irish Church, opposed church tests in the universities, and introduced two franchise bills, in 1861 and 1864. Author of History of the Collon Manufacture in Create Prices 1862.

facture in Great Britain, 1853.

Baines, Peter Augustine, D.D. (1786-1843), a Rom. Catholic bishop, born at Kirkby, Lancashire. He was educated at the English Benedictine Abbey of Lambspring, Hanover, and entered the Benedictine order in 1804, and became a priest in 1810. He manded the restoration of Mustapha taught at Ampleforth till 1817, when At first he resisted, but seeing that he undertook the mission at Bath, he would soon be enveloped in flames, He won a high reputation as an he strangled Mustapha and killed cloquent preacher, and in 1823 he was himself. The Turkish word Bairakdar appropried conditions before to Colombia. appointed coadjutor-bishop to Collingridge, and in the same year was consecrated bishop of Siga. In 1829 became vicar-apostolic of the western district of England; in this year he bought Prior Park, where he founded St. Peter's and St. Paul's, a lay and eccles, college respectively. He pub. many sermons, lectures, and pamphlets on controversial subjects, the manuscripts of which are preserved at Prior Park.

chapel, and composed numerous poor.

voir, the descent to which is by steps. Over the bath and steps is an anct. vault. The building of this bath has In 1860 he was created been ascribed both to the Romans and to the Moors.

Bains, or Bains-les-Bains, a vil. in the dept. of Vosges, France, 16 m. S.S.W. of Epinal; it is frequented for its baths and warm springs (86-123° F.), which are recommended for cases of gout and diseases of the chest. Some ancient bronze medals, mostly Rom., but a few Gk., were discovered in 1752 under a large stone placed over one of the springs. Pop. c. 2000. Baiocco, or Bajocco, a small coin

worth about a halfpenny, coined by the papal states, 1-100th part of the scudo = 4s. 3d., so called from its

brown colour.

Bairaktar, or Bairak-dar (1755-1808), the title of Mustapha, Grand Vizier of Mahmoud II. He was born of poor parents, but distinguished him-self in military service. When Pasha of Rustchuk, he fought against the Russians with some success, 1806. On hearing that the janissaries had murdered Selim III. and put Mustapha IV. on the throne, he marched to Constantinople, deposed Mustapha and elevated his brother Mahmoud II to the throne 1808. He was then II. to the throne, 1808. He was then appointed Grand Vizier. His policy His policy was to strengthen the regular army and crush the power of the janissaries. However, his success was short-lived. for in the same year, the janissaries revolted, seized the Seraglio, and demeans standard-bearer. Bairam, or Beiram, the name of two

great Mohammedan feasts: 1. The Lesser B. is celebrated at the end of the fasting month Ramadan or Ramazan. It lasts from one to three days, and is marked by great rejoicings and the interchange of presents.

2. The Greater B. is held seventy days after the Lesser, and lasts for four days. It was instituted in commemoration of Abraham's sacrifice of Isaac. The Baini, Giuseppe (1775-1844), It. faithful of Islam are expected to offer priest, musical critic and composer, up a sheep, which is divided into three was b. and d. at Rome. He was portions, one for the household, one appointed master of the pontifical for the relatives, and one for the faithful of Islam are expected to offer

Baird, Sir David, Bart. (1757-1829), 1 a British general, b. at Newbyth, Haddingtonshire. Entered the service, 1772; served in British India, 1780-89. He was wounded while fighting against Hyder Ali at Pernambucum in 1780, and was taken prisoner and kept in a dungeon at Seringapatam for nearly four years. He was in England on furlough for two years, returning to India in 1791. He took Pondicherry, 1793. In 1799 he led the assault at Seringapatam, Colonel In 1799 he led Wellesley (afterwards Duke of Wellington) being in command of the reserve. In 1801 he commanded an expedition to Egypt for the expulsion of the Fr. On his return to India be complained of the preference given to Wellesley, and asked for leave of absence. In 1804 he was knighted and made a K.C.B. Led an army to re-capture the Cape of Good Hope from the Dutch settlers, 1806, and served in the siege of Copenhagen, 1807. In 1808 he was sent to the assistance of Sir John Moore with a reinforcement of 10,000 men, and distinguished himself at Corunna 1809. On his return to England, he was thanked by parliament for his services, and received a baronetcy. In 1810 he retired from active service, and failed in his application for a peerage and a pension In 1820 he was appointed commanderin-chief in Ireland, but was not successful as an administrator, and was removed from office in 1821, when Marquess Wellesley became lord-He died at Fern Tower. lieutenant. Crieff.

Baird, James (1802-1876), iron-master, b. at Kirkwood, Lanarkshire, son of Alexander B., a coal master. He was for a time at Glasgow Uni-versity. In 1826, in conjunction with his father and brother, he leased some coal - fields at Gartsherric, which proved a great success. In 1830 he took the management of the blasting furnaces. From 1842-64 they employed about 10,000 men and boys on their furnaces at Gartsherrie, Muirkirk, and Eglinton, which turned on annually 300,000 tons of iron.
1.P. for Falkirk Burghs, 1861-52 and 1852-57. Left a fortune of

Scotland, V1200 10001 Patrace Baird.

and American co., authorl Pennsylvania, and graduated from Pennsy Nama, and graduated from Jeffersch College, 1818. He was agent is densely wooded and hilly. Its and secretary of the American and Foreign Christian Union, and worked in Europe on behalf of temperance and a revival of evangelical Protes-long nap, chiefly used for curtains.

tantism. He wrote A History of Temperance Societies in the United States, 1836; Protestantism in Italy, 1845; and a History of the Albigenses,

Waldenses, and Vaudois.

Baird, Spencer Fullerton (1823-87) an American naturalist. Graduated Dickinson College, from Carlisle. Pennsylvania, to which he was elected professor of the natural sciences. He became assistant secretary of the Smithsonian Institution at Washington in 1850, and secretary in 1873. During this period the National Museum was organised and developed by him. In 1871 he was elected commissioner of fish and fisheries. He wrote numerous books on zoology and American archæology, the most important being: Catalogue of North American Reptiles, 1863; Mammals of North America, 1869; Birds of America (with John Cassin), 1860; History of North American Isirds (with Dr. Brewer and Professor Ridgeway), 1874-84. He also trans. and ed. from the Ger. Iconographic Encyclopædia.

Baireuth, or Bayreuth, a tn. in Bavaria, cap. of the dist., Upper Franconia, on the Red Main, 58 m. N.E. of Nuremberg by rail. It is famous for Wagner's theatre (1876). built especially for the performance of his operas. Among other interesting buildings are the palaces Fantasic and Hermitage. In the latter may be seen the apartments of Frederick the Great, and the room where his sister wrote her memoirs. There are also the houses of Wagner (Villa Wahn-fried) and of Jean Paul Richter. The graves of Richter and Franz Liszt may be seen in the cemetery. The to. was formerly the cap. of a margraviate, ruled by the house of Hohen. There are manufs, of cotton, linen, thread, sewing-machines, agric. and musical instruments. There are also distilleries, breweries, and brickkilns. The suburb of Sankt Georgen is to the N.E. on a hill. Pop. (1909) 29,384. See Meyer, Das Stadtbuch von Baireuth, 1896; Barry, Manual for Visitors, 1894.

Bairnsdale, a tn. in Victoria, Australia, on the Mitchell R., 37 m. N.E.

of Sale : pop. about 4000. Bairout, see BEIRUT.

an

Baise, or Bayse, one of the chief rivs of the dept. of Gers, France. It is 145 m in length, and flows from the Hautes-Pyrénées to the Garonne.

which it joins at Aiguillon.

Baitul, or Betul, a dist. of the
Central Provs., British India, which
is densely wooded and hilly. Its
cap. is Budnur, and the pop. about
300,000.

texture.

Baja, see BAIÆ.

Baja, a tn. in the co. of Bács, Hungary, noted for its swine fair. The chief trade is in grain, corn, shoes, and alcohol. Pop. (1900) 20,361.

Bajaur, a dist. on the borders of British India, N.E. of Afghanistan, separated from Chitral on the W. by It is a fertile plain, the Lahori Mts.

yielding iron ore.

Bajazet, or Bayazid I. (1347-1403), son of Amurath I., on whose death at the battle of Kossova he became sultan of the Turks. He was so active in warfare that he won the 'Ilderim' (lightning). conquered Bulgaria and parts of Asia Minor, Servia, Macedonia, and Thessaly. He blockaded Constantinople for ten years, thinking to subdue it by famine. Sigismund of Hungary with a large army, officered by 2000 Fr. nobles, laid siege to Nikopolis, but B. gained a decisive victory over the united forces of Fr., Poles, and Hungarians, 1396. He was, however, defeated in 1402 near Angora by Timur, who kept him prisoner till his The literary tradition that he was kept in a cage and fed with bits like a dog (cf. Marlow's Tamburlaine and Rowe's Tamerlane) is entirely without historical foundation. ing his sultanship he made praise-worthy efforts to improve the ad-ministration of justice.

Bajazet, or Bayazid II. (1481-1512), a Turkish sultan, son of Mohammed II. He ascended the Ottoman throne II. He ascended the Ottoman throne in 1481. During his reign he conquered Constantinople, and engaged in continuous warfare with his neighbours, particularly with Hungary, Poland, Persia, Venice, and Egypt. The last years of his reign were disturbed by the quarrels of his three sons about the succession to the throne. He finally abdicated favour of his youngest, Selim, and near Adrianople, on his way to exile. He is said to have died at Aya, near Hassa, and some say he was imprisoned by his son Selim. He was a generous ruler, but under the influence of the janissaries. His court was noted for its luxury. Many of the beautiful mosques in the Ottoman

empire were built by him.

Bajimont, see BAGIMONT'S ROLL. Bajmok, a tn. in the co. of Bács,

Hungary, not far from Theresienstadt; pop. (1890) 7151.
Bajus, Michael, or De Bay (1513-89), theologian, b. at Melun; studied 89), theologian, b. at Melun; studied sian bakhtcha, orchard, garden; and theology at Louvain, became prosper of scriptural interpretation as the university in 1552, and chan-in the valley of Choruk. The ancient

anti-scholastic school of theology. Pius II. condemned him in the bull ex omnibus afflictionibus, 1567, for his teaching on justification by faith, sufficiency of " free-will and

Bakchiserai

the immacula again condemned by Gregory XIII., 1579. His school came into strong conflict with the Jesuits, and later had great influence on Cornelius Jansen and Jansenism (q.v.). Collected works pub. 1696. See Linsenmann, M. Baius und die Grundlegung des

Jansenismus, 1867.

Bajza, Joseph (1804-58), Hungarian poet and writer, born at Szücsi; contributed to Aurora, and succeeded Kisfaludy as editor, 1830; pub. a translation of foreign plays and a collection of his own lyrics, 1835, which estab. his position as a poet. He became director of the National Theatre at Pest, 1837. historical writings include Historical Library, 1843-5: Universal History, 1847; and a translation of Dahlmann's History of the English Revolution. In 1848 he was editor of Kossuth's paper, Kossuth Hirlapja.

Bakacs, Thomas (1442-1521), Hungian and the Aller of Sakara, Sakara (1442-1521), Hungian and Sakara (1442-1521), Hungian

cardinal and politician. bishop He became of and Eger, archbishop of Erztegon, and cardinal and titular patriarch of Constantinople, 1510. He directed foreign policy under Michael Corvinus and Ladislaus II.; he failed in his candidature for the papacy in 1513; he declared an unsuccessful crusade against the Turks.

Bakalahari, the name of a tribe of Bechuanas, living in the Kalahari dist. in Southern Africa.

Bakargani, a dist., Dacca div. Eastern Bengal and Assam, British India; area 4542 sq. m.: prin. tns. Barisal and Pirojpur; chief product, It is situated on the delta of the Ganges and Brahmaputra; is intersected by rivs., of which the chief are the Meghna, Arial Khan, and Harnighata. The forest tract of and Harnighata. The forest tract of the Sundarbans lies along the coast. Pop. 2,291,752.

Bakau, or Bacau, the cap. of the dist. of the same name in Moldavia, Roumania, on the Bistritza, 50 m. W.S.W. of Jassy, and 188 m. N. of Bucharest by rail. It has a gymnasium, paper works, and some trade in agric. products. Pop. (1899) 16,187. of whom 4000 were Jews.

Bakchiserai, or Bakhtchisarai (Per-

years remained in a semi-ruined state, but was restored in 1787 by order of Prince Potemkin. The tn. contains one long street of bazaars and booths; there are thirty-six moques, synagogues, and a Christian church. In one of the synagogues was found a very anct. parchment roll of the Bible which has since been placed in the Imperial Library. Leather articles,

trade in tobacco a mixed pop. of

Tartars, Russians, Greeks, Armenians, and Karaite Jews, which numbered

13,000 in 1897. Bake, Jan (1787-1864), b. at Leyden, was a classical scholar. Professor of Roman and Greek literature for

over forty years in his native town. Bakel, a fortified port and chief tn. of the B. dist., Senegal, Fr. W. Africa. It is situated on the Senegal R., 85 m. below Kayes, and about 550 m. above St. Louis on the coast. It is an important trading centre from the interior.

Baker, Sir Benjamin (1840-1907), an illustrious Eng. civil engineer. He invented the pneumatic shield; designed, in conjunction with Sir John Fowler, the Forth Bridge, and assisted in the construction of the Nile reservoir. He wrote many papers on engineering subjects. Knighted, 1890;

K.C.B., 1902. Baker, David (1575-1641), Eng. Benedictine monk, b. in Monmouthshire; studied law but was converted to Catholicism, entered a monastery at Padua and joined the renewed Eng. congregation of Benedictines, 1619. He was spiritual director of an Eng. Benedictine convert at Cambrai, and was on a mission in England when he died. His valuable MS. collection on eccles. history is in Jesus College, Oxford.

works on medical and surgical subjects, which include: The Newe Jewell

palace of the khans was built by Defoe in the Universal Speciator, Abdul-Sakhal-Gerai in 1519, and for 1728, and married his youngest years remained in a semi-ruined state, but was restored in 1787 by order of scientific work was concerned with scientific work was concerned with the use of the microscope. He gained the Copley gold medal of the Royal Society for observations on the crys-tallisation of salts in 1744. He was made a fellow in 1740. He helped in the foundation of the Society of Arts. 1754, and by his will founded the Bakerian Lecture of the Royal the Royal Society.

Gilbert (b. Baker. John Eng. botanist, b. Guisborough, Yorkshire; became in 1886 first assistant at the herbarium of the Royal Gardens. Kew, and keeper 1890-99. He was Victoria medallist of the Royal Hortic. Soc., 1897, and gold medallist of the Linnæan Soc., 1899. He is F.R.S. and F.L.S. He was associate editor of the Journal of Botany, and editor of the Journal of Botany, and has pub. many valuable botanical works, of which the most important are: Synopsis Filicum, 1883 (begun with Sir W. J. Hooker); Flora of the Maurilius, 1877; Flora of the English Lake District, 1885; Handbooks of the Fern Allies, 1887; Amaryllidacce, 1888; Bromelidacce, 1889.

Baker, Sir Richard (1568-1644) author of the once popular Chronicle of the Kings of England, which, we learn from Addison's Speciator (269, 329) and Fielding's Joseph Andrews, was the favourite history of the country squires. He was M.P. for Arundel and E. Grinstead, and knighted 1603. He lost all his property, and was confined in the Fleet Prison 1635, where he wrote his history, and died.

Europe, and

Baker, George (1540-1600), a member of the Barber Surgeons' Company, and elected master in 1591, famous. He first explored the Atbara He was attached to the household of the Earl of Oxford, and he wrote sev. met Speke and Grant at Gondokoro discovery

jects, which include: The Newe Jewell
of Health, a translation of Corrad
Gesner's Evonymus, with a preface.
1576; translations of Guido's Questions, 1579; and Vigo's Chirurgical
Place of Select Medicine, 1579.

Baker, Henry (1698-1774), scientist
and author, born in London, was at
one time a bookseller, but, in 1720,
as tutor to a deaf girl, invented a
system of teaching the deaf and
dumb. He kept his methods secret.

Khedive Ismail appointed him governor-general of the Nile equatorial
dists. for four years to suppress the
for trade. Many difficulties prevented
his success, but he laid the foundathe main sources

After his return to England. 1874, he travelled in Cyprus, India, N. America, and Japan. He was throughout his life a mighty gamehunter. His second wife (married 1861), a Hungarian, Florence von Sass, accompanied him on all his travels. His publications include The Albert Nyanza and the Exploration of the Nile, 1866; Nile Tributaries and Abyssinia, 1867; Ismailia, 1874; Wild Beasts and their Ways, 1890; and many books of travel.

Baker, Thomas (1656-1740), antiquary, born at Lanchester, Durham; was educated at St. John's, Cambridge, of which he was a fellow. He refused to read James II.'s De-claration of Indulgence; and lost his living in 1690 as a non-juror, and in 1717 his fellowship. He left his MSS. on the history of Cambridge University to the British Museum and the

university.

Baker, Sir Thomas Durand (1837-93), a British officer. He obtained a commission as ensign in the 18th Royal Irish foot regiment in 1854. He served in the Crimean War, 1854-56, and was present at the siege of Schastopol. In 1857 his regiment was ordered to Central India, where he took part in the pursuit of Tantia Topi, 1858. He was appointed augmentment of the schant in the Asharti quartermaster-general in the Ashanti expedition, 1873-4; assistant-adjutant-general of the headquarters staff in London, 1875; aide-de-camp to Queen Victoria, 1877. During the Russo-Turkish War he took an active part in the operations, being attached to the Russian army; in the following year, 1878, he was sent to India as military secretary to the governor-general, Lord Lytton; he accompanied Sir Frederick (afterwards Earl) Roberts in the advance on Kabul, 1879-80. He was made a temporary lieutenant-general in 1891, and died at Pau.

Baker, Valentine (1827-87), also Baker, Valentine (1827-87), also known as B. Pasha, an Eng. soldier, brother of Sir Samuel White B. Entered the army in 1848; served in the Kaffir War, 1852-3; promoted to colonel of the 10th Hussars, 1860; exp. ored the north-eastern frontier of Parsia 1873; entered the service of Persia, 1873; entered the service of salt are col the sultan, 1877, and became a major- in summer, general in the Turkish army. He Baking i took part in the Russo-Turkish War; which food organised the Egyptian army for the khedive, 1882-7, and was defeated by Osman Digna at El Teb, near Tokar, in 1884. On his return to England he joined the staff of General Wolseley, 1885, but his application to re-enter the British army was refused. Baking Powder, a substitute for enter the British army was refused. Yeast composed of a mixture of tar-Two years later he returned to Egypt taric acid and bicarbonate of soda, a

tions for General Gordon, his succes- | Clouds in the East, 1876, and The War in Bulgaria, 2 vols., 1879.

Baker City, the co. seat of B. co., Oregon, on the Powder R., on the Oregon Railroad and Navigation Company's and Sumter Valley Railroads. It is the centre of a gold and silver-mining dist. The chief industries are agriculture, lumbering, and the manuf. of carriages. There are also breweries, brick-yards, and plan-

also orcweries, brick-yards, and plan-ing mills. Pop. (1900) 6663.

Baker Mount, a volcanic mt., 10,827 ft. in height, belonging to the Cascade Range in Whatcom co. Washington, United States.

Bakersfield, the co. scat of Kern co., California on the Kern R. and co.

California, on the Kern R., and on the Southern Pacific, and the Atchison, Topeka, and Santa Fé Rail-roads. It is a stock-raising and fruitgrowing dist., and there are machinery works, foundries, oil-refineries, planing and flour mills. The chief exports are live-stock, wool, hides, and agric. products. Pop. (1906) (estimated) 6500.

Bakewell, tn., Derbyshire, England, on the R. Wye, 25 m. from Derby. The scenery of the neighbourhood is beautiful; near are Haddon Hall and Chatsworth. There are Saxon remains on Castle Hill; the church of St. Anne is mentioned in Domesday; or its Side stands an 8th-century. on its S. side stands an 8th-century carved stone cross. Lead-mining was practised from very early times, and zinc and marble are still worked. The almshouse dates from 1602, the grammar school from 1637. Pop. 2850.

Bakewell, Robert (1725-95), agri-

culturist, b. at Dishley, Leicestershire, England; devoted himself to the breeding of live-stock; his new long-wool 'Leicester' sheep and the 'Dishley long-horn' cattle became famous. His name stands high in the history of British agriculture. See Housman, 'R. Bakewell,' Jour. Royal Agric. Soc., 1894.

Bakhmut, tn., gov. of Ekaterinoslav, S. Russia; founded in the 16th century, it is now a centre of iron

and steel manuf., and of coal and salt mining. Pop. 30,585.

Bakhtegan, or Niriz, Lake, Fars, Persia, 74 m. long, formed by the drainage of the Kur. Deposits of salt are collected when the lake dries

Baking is a method of cooking in which food is cooked in a heated oven; the term is also used in connection with the making of pottery (q.v.) and bricks (q.v.). The chemistry of the process is explained in the article on cookery (q.v.).

Baking Powder, a substitute for yeast composed of a mixture of tarand died at Tel-el-Kebir. Author of quantity of flour usually being added to reduce the strength. When the powder comes in contact with water. and the output has reached a normal carbonic acid gas is set free by the level once more (over 8 million tons, decompositie" evolution of

is kneaded t

Bakony Wald, a mt. range in Hungary, N. of Lake Balaton and S.W. of Buda-Pest. It forms the outlying E. portion of the Alps, and is separated from the Carpathian system by the Danube. The N.E. portion is known as the Vertes Mts. and Pelis Mts. (highest point 2476 ft.). Up the S.W. rostion it has been supported by the D.W. portion, the B. W. proper, the highest peak is Köröshegy, 2320 ft. The forests feed large herds of swine, and were the haunt of the robbers of

For European travellers it embraces the large or small gifts necessary in the E. to procure any service, hence equivalent to 'tip.'

or Baktchissari. Bakhchi - Sarai (Turk., garden-palace), tn. in gov. of Taurida, Russia, 20 m. by rail from Simferopol, Crimea. The cap. of the Krim Tartar khans from 15th century, it was sacked by the Russians in 1735. The khan's palace, built 1519, was destroyed but has been restored. Near by is Chufut Ka.eh, the descrted seat of the Karaite Jews. Industries include leather, cutlery, and agric. machinery. Pop., mostly Tartars, and agric. 12,955.

Baku, a government of Transcaucasia, Russia, bounded E. by the Caspian Sea, N. and W. by Daghestan and Elisavetpol, and S. by Persia; area, 15,061 sq. m.; pop. (1904) 1,013,900. The chief tns. are B. (see below), Geok-chai, Kuba, Lenkoran, and Shemahka. B. includes the fertile and wooded slopes N. and S. of the Eastern Caucasus, the Kuba plain N. of that range, and the Kura and Ara steppes to the S. The railway lines are run from B. to the Beslan-Vladikavlaz junction via Derbent along the Caspian Sea (400 m.), and from B. to Batun via Tillis along the Kura valley (560 m.). The arid Apsheron peninsula is the seat of the great oil-fields, which lie round the tn. of B.; these include Balakhani, Bibi Eybak, the 'Black tn.' and the 'White tn.'

the 'Black th.' and the 'White th.'
The output, amounting to some
5000 tons only in 1863, yields about
10 million tons annually. In 1904,
9,800,000 tons were produced; the
outbreak in 1905 of the racial feuds
between Tatars and Armenians and
the general civil disorders of the
period reduced B. to anarchy and largeareas of the oil-fields were burned.

The refined oil, petroleum, is conveyed by pipe-lines to

... on the Black Sea for export: the porosity which is required to the heavier crude oil, naphtha, used make the bread light. by tank-cars. The prin. tn., Baku, lies to S. of the Apsheron peninsula, on the Caspian. It is an important harbour for the and is the chief

naval flotilla.

W., the old tn., still retaining its oriental look, is to the E. The tn. is mentioned by Masudi, the Arabian geographer, in the 10th century, and the 11th-century mosque of the Persian shahs still remains. B. belonged to Persia till its capture by the Russians in 1735; it became part of the Russian empire in 1806. The Parsee fire worshippers had a holy shrine and sacred place at Surakhani, 13 m. E. of the tn. Pop. (1904) 177,777. See Marvin, The Region of the Eternal Fire, 1891, and Henry, Baku, an Eventful History, 1906.

Bakunin, Michael (1814-76), anarchist and revolutionary, was born at Tajok, Russia, of a noble family. He resigned his commission in the Imperial Guard, and in 1846 met Proudhon, the founder of anarchism, in Paris. Expelled from France in 1848, he shared in the Dresden revolution and was sentenced to death. The sentence was commuted, and he was later handed over to the Russian authorities and exiled to Siberia, 1855. He escaped in 1861, and spent the rest of his life chiefly in Switzerland. He joined the International in 1869, becoming the leader of the more violent Latin section, styling themselves federalists or anarchists as opposed to the political socialists under Marx. His attacks on his opponents at the Hague Congress of the International, 1872, led to the ent international, 1872, 18d to the expulsion of B. and the anarchists. He died in Bern. His best known work is Dieu et l'Elat, a portion of his Féderalisme, Socialisme et anterhéologisme; his complete works were published 1905. See his Life by M. Nettlau.

Bala, tn., Merionethshire, N. Wales, The prin. industry is stocking and flannel manuf. B. College is the northern theological college of the B. Lake Calvinistic Methodists. (Llyn Tegid), 4 m. long by † wide, is the largest in Wales. Pop. 1554.

O.T nise

of Heb. race. In other parts of the Bible, e.g. 2 Peter ii. 15, Rev. ii. 14, he is reprobated as one of those who

Balak, King of Moab, alarmed at the Duke of Guise (1519-63). defeat of the Amorites and Bashan by Moses and the Israelites, sends twice with promises of reward to summon B. from Pethor on the river, i.e. Euphrates. Forbidden at first, he is commanded to go, but only to speak the words God shall put into his mouth. On his journey occurs the incident of the angel and the speaking ass (cf. the speaking serpent in Gen., the only other example in O.T.).
Three times B.'s curses are turned to blessings, at the high places of Baal, on Pisgah and on Peor. These blessings take the form of seven poems: (1) xxiii. 7-10, the power of Israel; (2) and (3) xxiii. 18-24, xxiv. 3-9, the coming monarchy; (4) xxiv. 14-19, the rise of the star and sceptre out of Jacob; (5), (6), and (7) xx.-xxv. the doom of Amalek, conquest of the Kenites by Assyria, the ships from the W., Chittim (?Cyprus), to over-throw Assyria. The last three poems are considered a later addition by modern critics, who trace two distinct versions in the story of Numbers. B. is slain in the punishment inflicted on Moab (Josh. xiii. 22). Balachong, a Chinese condiment

made of putrid shrimps or small fish pounded with spices and salt and then

dried and eaten with rice.

Balæna (Lat., whale), the right-whale, is the typical genus of the family Balænidæ and order of mammals known as Cetacea. The name was first applied to the common or Greenland whale, but has been widened in application. It has a large head, no teeth in the adult, a parrow throat, long plates of whalebone attached to the palate, and no dorsal fin. B. mysticelus is the Greenland whale: B. australis the southern right whale.

Balæniceps (Lat. balæna, whale, caput, head) is the shoebill, a genus of the family Ardeidæ, which includes herons and bitterns, and it is allied to the storks and flamingos. It lives in the marshes of the Upper Nile and feeds on fish, lizards, and other reptiles. It has a peculiar, large, boat-shaped beak. B. rex is the only species known.

Balænoptera (Lat. balæna, whale, πτερόν, wing), the name given by De Lacepède to the fin-whales known as rorquals because of their dorsal fin. made on the Russian guns. Pop. They are found in all seas and are (1897) 1274. See Kinglake's Invasion found in a fossil state. B. musculus is of the Crimea, vol. iv., 1863-87; and the common rorqual; B. sibbaldi the Paget's The Light Cavalry Erigade in

blue whale.

love the 'wages of unrighteousness.' | given for a similar reason, of Francis,

Balaghat, a dist. of the Nagpur div. of Central Provs., British India; area 3132 sq. m.; pop. 326,521.

chief tn. is Burha.

Balaguer, Vittorio (1824 - 1901), Spanish poet, historian, and politician, was b. at Barcelona, and d. at Madrid. In 1854 he was appointed keeper of the archives at Barcelona, and shortly afterwards professor of history. Among his most important works may be mentioned: Trovador de Montserral, 1850; Primavera del ullimo trovador calulan, 1876; Don Juan de Serralonga, 5th ed., 1875; Historia politica y lileraria de los trovadores, 1878.

Balakhissar. see Balikesri.

Balakhna or Balachna, one of the circles of the prov. of Nizhni Novgorod, Russia, situated principally on the r. b. of the Volga. The land is cultivated and produces crops of flax, hemp, and corn. The chief tn., of the same name, is about 20 m. N.W. of Nizhni-Novgorod, on the r. b. of the Volga, where it is joined by the Ugola. The wooden walls and towers which once surrounded it were destroyed by fire in 1730. There is traffic in grains, linens, and other manufs., and barks are built for the navigation of the Volga. Pop. (1897) 5037.

Balaklava, or Balaclava, a tn. in the S.W. of the Crimea, on the Black Sea, about 6 m. from the harbour of Sebastopol. The harbour is excellent, having a narrow entrance, and being sheltered by lofty hills. It is the Portus Symbolorum of the ancients. a port at which Ulysses is said to have touched. An accurate and graphic description of the bay is given by Homer. It was for long a Gk. colony; in the 14th century it fell into the hands of the Genoese, who called it Bella Cala, or Cembalo. (The present name is supposed to be derived from the It. Bellochiara, fair haven.) The Genoese settlers were expelled by the Turks in the 15th century. Catherine of Russia made it into a military station. In 1854-6 the town was held by the British. An engagement was fought between the Eng. and the Russians on the heights between B. and Tchernaya, when the famous charge of the Light Brigade (Six Hundred) was

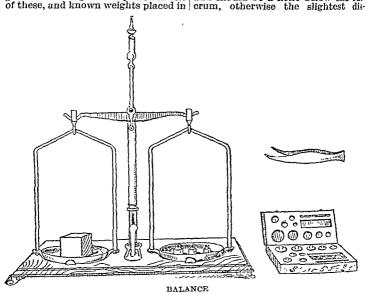
the Crimea, 1881. Balaré, Le (Fr., the scarred):

Balariaka, a musical instrument common in Russia, where it is used by the peasants to accompany popular hero of one of Scott's novels, because of hisscarred cheek. 2. The nickname, two orthreestrings, not unlike a guitar.

Balance (Lat. bi, two, lanx, a dish), an instrument for determining the weight of a body. The application of the term is extended to any condition of equilibrium, as in B. of power (q.v.), and also to the excess of one quantity over another, or the quantity necessary to establish equilibrium, as in B. of trade (q.v.) and the credit or debit B. in a book-keeping account.

The common B. consists essentially of a beam resting at its middle point upon a fulcrum and furnished at its extremities with two scale pans; the goods to be weighed are placed in one and should be a little below the ful-

The B. should be in equilibrium when the scales are empty. This does not necessarily mean that the arms are equal, for unequal arms may be compensated for by pans of unequal weight; this condition would give an incorrect result, a weight in the lighter pan on the longer arm having more additional turning power than an equal weight in the heavier pan on the shorter arm. 3. The centre of gravity of the beam and pans should be in the same vertical line as the fulcrum when the beam is horizontal,



the other until the beam assumes a placement would result in the beam The B. horizontal position. thus constitutes a lever of the first class. the condition of equilibrium being estab, by the force rotating the beam in one direction being counteracted by an exactly equal force tending to rotate the beam in an opposite direction. In order that the B. should give a true result, the following conditions must exist: 1. The two arms of the beam must be precisely equal in length, otherwise a weight depending from the end of the shorter arm will be balanced by a smaller weight on the longer arm, as in the steel-yard. A sufficient test is provided by placing weights in the two pans until the beam is horizontal and then interchanging the weights, when the beam should become horizontal again.

toppling right over.

A B. is said to be delicate, sensible or sensitive when a small additional weight in one pan causes an appreciable rotatory movement of the beam. that is, when the angle moved through by the beam is large for a small difference in the weights at either end. Delicacy may be obtained by attention to the following points:

1. The arms of the B. should be made as long as is consistent with lightness and rigidity, for the longer the arm is, the greater will be the turning power of a small weight. 2. The weight of the beam should be as small as is consistent with rigidity, for the amount of rotation should depend as much as possible on the weight in the 2. pan, or, in other words, the weight in

the pan should be the state of the sible proportion of the tending to turn the beau

tending to turn the bear fulcrum. These two conditions are often met by making the beam of aluminium and constructing it so that it is capable of bearing the greatest strain without bending in a vertical direction. 3. The centre of gravity of the beam should be brought a very little below the point of support, so that the weight of the machine should tend as little as possible to keep the beam in a horizontal position. 4. Friction should be reduced to a minimum. To effect this, the edges from which the beam and pans are supported are made as sharp and as hard as possible, and the surfaces on which they rest as smooth and as hard as possible. The edges are therefore often made of agate and the surfaces of polished steel. Additional delicacy is imparted to the machine by the use of a long vertical pointer attached to the middle of the beam, the slightest deflection of which causes a considerable are to be described by the end of the pointer.

It is sometimes necessary that a balance should be stable, that is, that the beam should return as quickly as possible to the horizontal position after deflection. To effect this, it is necessary that the centre of gravity of the beam and pans should be some of the beam and pans should be some distance below the fulcrum, so that when the heam is deflected, and the centre of gravity therefore no longer vertically beneath the fulcrum, the weight of the machine will operate beinging the B. to rest again. This condition is the reverse of that required for sensibility, so that the properties of stability and sensibility. properties of stability and sensibility are in some degree incompatible. In commerce, where quickness of weighing is desirable, stability is aimed at; whilst in physical and chemical re-search, where accuracy is of prime search, where accuracy is of primare importance, and time merely a secondary consideration, the centre of gravity of the B. is brought very close to the fulcrum. In most of the delicate Bs. used for chemical analysis, the distance of the centre of gravity from the fulcrum can be regulated within small limits by the use of a screw on the beam vertically above the fulcrum, turning the screw so that it rises bringing the centre of gravity nearer the fulcrum, and vice versa. Such Bs. are protected from air currents, dust, etc., by being enclosed in glass cases, with sliding fronts. Strong sulphuric acid, caustic, potash, or some other dehydrating substance is usually exposed in

nd pans to rest on suitable hen not in use, the knifebrought into contact with

their surfaces by moving a screw in front of the instrument. A graduated scale hehind the pointer renders it unnecessary to wait for the B. to come to rest at each weighing, as equal deflections either side are quite sufficient to indicate equal weights A small 'rider,' or movable piece of wire can be used to bring the B. into equilibrium when the difference in weights is very small; the rider is moved along the beam towards its extremity over small graduations, the motion over one graduation being generally equivalent to an additional weight of one-hundredth of a grain.

Even if a B. be not accurate in itself, a good result may be obtained by double weighing. The body to be weighed is placed in one pan and shot or sand poured into the other until the beam is horizontal. The body is then taken off and known weights placed in the pan until the beam is again horizontal. The result will be accurate even if one of the pans is loaded. Another method consists of placing the body to be weighed in the two pans successively and obtaining two results. If the fault of the B. is that it has unequal arms, the true weight will be the geometrical mean of the apparent weights, but if the B is false through the pans being unjustly loaded, the true weight will be the arithmetical mean of the apparent weights.

Roberval's B. consists of four rods hinged smoothly in the form of a parallelogram. In its position at rest the rods form a rectangle, the weight pans being firmly fixed to the vertical rods, and the horizontal rod-free to turn about their middle points. which are supported by fixed vertical uprights. Whatever movement takes place, the four movable rods form a parallelogram, t

weight pans alv The vertical wor one of the pans

fore always equal and opposite to the virtual work done in displacing the other, no matter on what parts of the platforms the weights may be placed. This form of B. is commonly used for weighing letters and parcels.

so that it rises bringing the centre of gravity nearer the fulcrum, and vice cresá. Such Bs. are protected from air currents, dust, etc., by being enclosed in glass cases, with sliding fronts. Strong sulphuric acid, caustic, potash, or some other dehydratic in gubstance is usually exposed in dishes to absorb moisture from the air. The wearing of the parts in a long arm until the beam balances chemical B. is obviated by allowing long arm until the beam balances chemical B. gravity nearer the fulcrum, and vice a lever of the first class, but equilibrium is obtained by varying the distance of the weight from the fulcrum instead of varying the weight. It consists of a beam movable about to be weighed. A movable weight is slid along the long arm until the beam balances chemical B. is obviated by allowing

long arm indicate the weight of the maze of wars and alliance of the It.

body.

The Danish steelyard consists of a bar with a heavy knob at one end and a hook at the other from which the body to be weighed is suspended. In this case the fulcrum is movable, and usually consists of a loop of string, its position with respect to graduations on the bar indicating the

weight of the body. The bent lever B. consists of a lever of unequal arms, the lighter of which ends in a pan to receive letters or small parcels. The other arm is bent downwards and weighted, and moves in front of a graduated arc. The nearer the weighted arm is to the horizontal position the greater is its turning power, as the weight acts at a greater distance from the fulcrum. Therefore the weight of the body placed in the pan is determined by the extent to which it lifts the weighted arm. The instrument is gener

TIa steel wire spiral, and evlinwhich the spring is attached to a pointer moving along a vertical scale.

body to be weighed is suspended by a hook, or placed in a pan attached to the bottom of the spring, and the weight is indicated by the amount of stretching that the spring undergoes. The elasticity of the spring varies with time and use, and as it is used directly against the force of gravity, the readings of such an instrument vary in different places on the earth's surface.

The torsion B. consists of a fine wire clamped at one end and carrying an index swinging in a horizontal plane at the other. The angle through which the index is twisted is proportional to the force causing the torsion. The index is usually a magnetic needle, and the instrument is used to measure the force of magnetic

attraction and repulsion.

Balance of Power, in diplomacy, the principle of maintaining an equilibrium between states or groups of states so that no single state or group -----ful, or

nciple |

tional recogody of ich we they

depend ultimately on no power being is of Luzon, Philippines, on the W. so powerful as to be able to ignore side of Manila Bay, 34 m. from them with impunity. In diplomatic relations the principle has operated, R. Talisay. Pop. (1903) 7347. though not stated in actual words, Balaniaus, a genus of colcopterous from the earliest times, e.g. in the insect of the family Curculionide leagues of the Greek city states: the which includes many species of small

republics; or the attempt of Wolsey and Henry VIII. to make England the balancing power in Europe. In the 17th and 18th centuries, the B. of P. was recognised as a definite formula of diplomacy. It was the guiding principle of William III. in his life-long struggle against Louis XIV. It explains the tangled diplomacy and constant wars of the 18th century, culminating in the coalition of all the powers against Napoleon. Canning's famous remark, 'I called the New World into existence to redress the balance of the Old,' in regard to his recognition of the revolted Spanish colonies in S. America, illustrates the vitality of the theory. Recent years have confirmed its place as a principle of modern European policy; the Triple Alliance has been countered by the Dual Alliance, and by her entente with France and the later agreement with Russia, Great Britain left her 'splendid isolation' in order to maintain the equilibrium threatened by the increase of Ger. power and the weakness of Russia. While formerly the principle was confined to European diplomacy, the tendency now is to extend it to world-politics; China and the Middle E. come into its sphere; the rise of Japan makes the B. of P. in the Pacific a vital question for the on the Balance of Power; Vattel, Le Droit des Gens; F. von Gents, Fragments on the Balance of Power; L. Oppenheim, Internal Law. vol. i.; and the Cambridge Modern History.

Balance of Trade, The, was a term applied to the balance of the profits of the exports and imports of a country. It was held that the wealth of a country depended on the differ-ence in gold between its exports and imports: if there was an excess in the value of exports over the value of the imports, the balance was in favour. if not, the balance was against the country. In consequence, legislation tended to protect the exports and

now regarded as fallacious. See also TRADE.

Balance Spring, see HoroLogy.

Balanda, a tn. of Russia, under the gov. of, and 90 m. N.W. of, Saratov; pop. 7000.

Balanga, the cap. of Bataan, on the

size. The members of this genus have a long snout furnished with a pair of horizontal jaws which assist it in placing the eggs in the kernels of fruit. The egg hatches into a larva, when the creature feeds on the hostkernel, bores a hole through it, and assumes the pupa state when it has assumes the pupa state when it has burrowed into the ground. They are cosmopolitan. B. nucum, the nutweevil, attacks common nuts and filberts; B. glandium, the acorn. Balanoglossus (Gk. βάλανος, gland, γλῶσσα, tongue), the typical genus of the Balanoglossida of the class Enterpreparate. It has a wearn-like class.

opneusta. It has a worm-like, clongated body, breathes by means of gillslits, and bears in the anterior region a curiously-shaped proboseis which serves as an organ of locomotion. inhabits the sand of various seas, and

about ten species are known.

Balanophoraceæ, an order of parasitic dicotyledons comprising many tropical species. They are leafless, and are found to exist on the roots of trees. The flowers are unisexual and appear above the ground with thin, scaly leaves, the stainens and carpels being borne on separate stems. The being borne on separate stems. The chief genus is Balanophora, which consists of eleven species growing in India.

Balantia (Gk. βαλάντιον, bag pouch), the generic name given by the Ger. naturalist Illiger to those marsupials commonly called Phalangers.

Balanus (Gk. βάλανος, acorn, gland), the scientific name by which is indicated the barnacle (q.v.) or acorn-shell (q.v.).

Balaoan, or Baloang, a tn. in the prov. of La Union, Luzon, Philippines, 22 m. N. of San Fernando; pop. (1903) 10,008.

Balard, Antoine Jérôme (1802-76), Fr. chemist, was born at Montpellier, and died in Paris. He became professor of chemistry in his native tn., and in 1826 he discovered bromine. In 1844 he was elected member of the Academy of Sciences, and in 1851 was appointed professor of chemistry in the College of France. He contributed to the Annales de physique et de chimie, and also to the Memoires de l'Académie des sciences.

Balaruc, or Balaruc-les-Bains, a vil. near the town of Frontignan, in the dept. of Herault, France, celebrated for its hot sulphur springs, near the of the Etang de Thau. there is Opposite the baths, isolated rock, called Rocairals the base of which Roquerol, covered with mussels and other shell-

fish. Pop. about 2000.

Balashov, a tn. of Russia, in the gov. of, and 125 m. W. of, Saratov, on the l. b. of the Khoper, a trib. of the Don. An agric. dist. Pop. 12.200.

Balasinor, a dist. of India situated in Gujarat, Bombay. Area, 189 sq. m.; pop. 46,000.

Balasore, or Balasor: 1. A dist. of Orissa, British India, on the Bay of Bengal. Rice and salt are produced. Area, 2064 sq. in.; pop. c. 1,100,009. . The cap., B., is on the Burabullung R., 16 m. from its mouth. It was the first English settlement in E. India (1642), and afterwards the seat of factories belonging to the Portuguese, Dutch, and Danes in succession. Danes sold their interest to the Eng. in 1846. It has dry-docks and a coasting trade. Pop. (1901) 20,880. 3. A peak, 6762 ft. high, in the Western Ghats, Malabar dist., Madras.

Balas Ruby, a term used by lapidaries to designate the rose-red varieties of spinel, which is composed chiefly of magnesia and alumina. occurs as crystals, softer than those of the oriental ruby, a much more valu-They are found chiefly able stone.

in India.

Balassa, Count Valentin (1551-94), Hungarian poet, wrote Latin poems and some popular lyrics in his own tongue for which he invented a new He fell at the storming of Gran, fighting against the Turks.

Balassa-Gyarmat, cap. of Nograd, Hungary, 40 m. N.N.E. of Budapest

pop. 9000.

Balata, the juice or latex obtained from Mimusops balata, the bullet or bully tree, belonging to the same order, Sapotacce, as the Malay guttapercha tree, Dicopsis, B. is used as an inferior substitute for caoutchouc and gutta-percha, but the presence of resin in the latex renders it useless for electrical purposes. It is used for belting, on account of its great strength. The B. tree grows in the W. Indies, S. America, and especially in Guiana.

Balaton, a lake in Hungary, S. of the Bakony Wald, 55 m. S.W. of Buda-Pest. The S. shore is bordered by marshy plains and downs. It is the largest lake in Central Europe, 48 m. long and 7½-10 m. broad, area 266 sq. m. Many streams fall into the lake, and the beauty of its scenery, especially near the Tibany peninsula, makes it a popular bathing and fishing resort.

Balausta, a name applied to the fruit of the pomegranate which is often erroneously termed a berry. is in appearance a golden colour, about the size of an ordinary orange, and the rind is thick, enclosing numerous seeds. each embedded separately in pulp surrounded by a cell-wall. This pulp is in reality the outer layers of the seed coats, and it is employed largely in the manuf. of cooling drinks.

Balayan, a seaport of the is. of Luzon, Philippines, in the prov. of Batangas. It is situated 30 m. N.W. of Batangas, and at the north-western end of the Bay of B., which is deep, but open to southerly winds. Mt. B. (alt. about 2675 ft.) is 3 m. to the N.E. Pop. (1903) 8493.

Balbastre, Claude Louis (1729-99), Fr. organist, was born at Dijon. He was the friend and pupil of Rameau, and was appointed organist at the church of Saint-Roch in 1756, sub-sequently to the cathedral of Paris and the king's brother until the Revolution. He had great skill as a performer, but little as a composer.

Balbec, see Baalbek. Balbi, Adriano (1782-1848), It. geographer and statistician, born at Venice; became professor of geography at Murano on the publica-tion in 1808 of his Survey of Political Geography. In 1813 he was ap-pointed to the customs at Venice, He published Statistical Essay on the Kingdom of Portugal, 1822. His best known works were the Allas Ellino-graphique du Globe, 1826, and the Abrège de Géographie, 1832. His son, Eugenio (1812-84), ed. his writings, 1841, and was also an eminent geographer.

Balbi, Gasparo, a 16th century Venetian merchant and traveller. His voyages in India and the E., Viaggio nelle Indie Orientali, 1590, were incorporated in De Bry's Collectiones Peregrinationum in Indiam Orientalem, 1594. He visited Goa, Cochia, and Burma; his account of

Pegu is especially interesting.

Balbinus, Decimus Cælius Calvinus (A.D. 237-8), Rom. emperor. On the death of the two Gordiani in Africa, B. and Maximus (Clodius Pupienus) were chosen joint emperors to continue the opposition to the usurping Emperor Maximinus, then with the army in Pannonia. Their powers army in Pannonia. Their powers were equal, and each bore the titles of pontifex maximus and princeps senatus. Maximinus invaded Italy, but was assassinated by his soldiers at Aquileia. On the approaching departure of Maximus against the Persians and of B. against the Goths, the Prætorian guard, adherents of the dead Maximinus, put the two emperors to death. B. had gained some reputation as a poet and orator, and both he and his colleague were of the highest rank and character in the scnate. See Gibbon, Decline and Fall of Roman Empire, c. vii., and app. 12 in Bury's edition.

Balbis, Giovanni Battista (1765-1831), an It. botanist. In 1798, after the conquest of Piedmont, he became a member of the provisional gov., and was also appointed director of the Botanical Gardens at Turin, and in 1819 of those at Lyons. Of his works the chief are Flora Taurinensis, 1806: and Flore Lyonnaise, 1827-28.

Balchen

Balbo, Count Cesare (1789-1853), an It. statesman and man of letters, was born at Turin. Napoleon Bona-parte created him auditor to the Council of State at the early age of eighteen by reason of his great business capacity, and when the peace of Vienna gave the prove. of Illyria to France in 1812 he was appointed to the commission which managed the affairs of that country. He vacated his appointment on the fall of Napoleon, and busied himself with literary pursuits, his Speranze Halia (Italy's Hope') in the him, re international to the him of the him and greatly hambled to Republical party under Mazzini.

Balboa, Vasco Nunez de (1410-1517), a Portuguese discoverer and adventurer who settled a colony at Santa Maria in the Gulf of Darien in 1513. He subsequently marched across the Isthmus of Darien and discovered the Pacific Ocean. He was superseded in his command, but at length was appointed lieutenant-governor of the countries on the Pacific coast, and married the daughter of Pedrarias, his successor at Darien. But he was accused of dis-loyalty, and put to death by Pedrarias

Balbriggan, a seaport tn. in co. Dublin, Ireland, 22 m. N.E. of the cap. It is famous for its hosiery and woollen manufactured articles, and there is a thriving linen trade; pop. (1901) 2236.

Balbus, Lucius Cornelius, a native of Gades (Cadiz), in Spain. He served under Pompey in the war against Sertorious, for which he received the Roman citizenship. He was prosecuted on a charge of illegal assumption of the citizenship, and was defended by Cicero and acquitted. looked after Cæsar's property during the Gallic campaigns. In 40 B.C., under Octavius (afterwards the Emperor Augustus), he was made a consul.

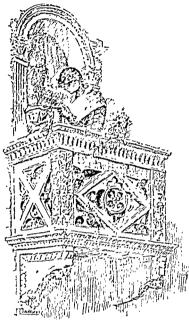
Balcarres, see LINDSAY; CRAWFORD;

and CAMPBELL, ANNA MACKENZIE.

Balchen, Sir John (1670-1744), a naval officer. He first served in the W. Indies, then in the N. Sea, 1703-5, and on the coast of Guinea 1705. While in the Channel he was twice continued by the Farmen he twice captured by the Fr.-when he was in command of the Chester, 1707, and when in command of the Gloucester, 1709. He again served in the W Indies, 1715-16, and in the Baltic, 1719-27. In 1728 he was appointed rear-admiral, in 1734 vice-admiral, in 1743 admiral, and in 1744 governor of

Greenwich Hospital. He was lost with his ship off Alderney, Oct. 1744.

Balcony, a railed gallery in front of a window. That it was not always placed before a casement is proved by its origin, as it was built out from the sides of fortified places to enable the defenders to throw stones and boiling liquid on the besiegers. Its introduction in dwelling houses dates from the early part of the 15th century.



BALCONY AT VENICE

It. in origin, it soon became popular in Spain and the Mediterranean countries, and figures prominently in the history, drama, and romance of

the southern peoples.

Baldachin: 1. A canopy which is crected over an eccles. altar. It is essentially an ornate structure, and is generally made of marble or silver. Examples are to be seen in almost any continental cathedral of note. In ancient times it was known as the ciborium, from the circumstance that the consecrated bread was kept beneath it. 2. In its domestic sense the term is employed to distinguish any prominence over doorways, windows, or even old canopied beds. The term has also been used to describe the canopy held over an eastern potentate to shield him from the sun.

Bald Buzzard, Fishhawk, and Fishing-eagle are various names given to the *Pandion haliatus*, or osprey (q.v.).

Balder, the Norse god of light, son of Odin and Frigg, and husband of Nanna. He may be described as the Scandinavian Apollo. The gods were aware that if evil happened to him it would be the signal for their overthrow, and therefore Frigg laid every object quick and dead under an obligation to refrain from offering him hurt. Loki, the god of evil, however, discovered that this oath had not been administered to the mistletoe plant, which was considered to be too young and weak to hurt any one, and, profiting from the omission, he threw a sprig of it at B., who fell down dead. Hel, goddess of the dead, offered to restore him to animation provided all things wept for him. But Loki refused to do so, and B. was lost. myth is considered bу authorities to be a remnant of treeworship, whilst others see in it a myth of ritual origin, but it seems pretty obviously a sun-myth, the slaughter of the luminary by the malevolent powers of winter. the mistletoe alluded to may not have been intended to describe the plant, but a magic sword, Mistelleinn, the origin of the name of which is totally different from that of the creeper, which is unknown in Iceland, whence the oldest known form of the myth comes.

Baldi, Antonio (b. 1692), an Italian painter and engraver. He studied painting under Solimena, and en-

of Don Carlos—and of engravings of

his own design.

Baldi, Bernardino, was b. at Urbino in 1553, of a noble family. He wrote a vast number of works in prose and verse, the greater part of which have remained unedited. Among those pub. are a poem on navigation, and sev. eclogues, which are not without merit. Of his prose works there are sev. 'Dialogues.' He also compiled a short chronicle of all the mathematicians known from Euphorbius down to his own time; and he pub. two Latin works on Vitruvius.

Baldi, Lazzaro (1623 or 1624-1703),

Baldi, Lazzaro (1623 or 1624-1703), a Florentine painter and engraver. He studied under Cortona at Rome, and became a clever imitator of that master. His works include: at Rome, 'Annunciation' in the Church of Saint Marcel; 'The Virgin, St. Catherine, and St. Bridget' in the Church of Santa Maria della Pace; and at Florence, 'St. John, the Evangelist' in the basilic of Saint-Jean de Latran Of his water-colours, a' Circumcision'

e pittore was published at Rome.

Baldini, Baccio, one of the first Italian engravers, whose works on that account have an historical interest. but are otherwise on a very low scale of merit. He appears to have been active from about 1460, and after 1481; he was bred a goldsmith, and was taught engraving by Finiguerra himself, who was the inventor of the art according to the Italians. Baldini, however, though acquainted with the art, was incapable of making original design; he communicated it therefore to Alessandro Botticelli, and the two entered into partnership; the one designed and the other engraved. Such is the story of Vasavi.

Baldinucci, Filippo (c.1624-c.1696), Itulian author. He devoted his an Italian author. time to the study of the history of art. and pub. a work on the history of the painters from Cimabue (1260) to 1670 (1681-88, 1767-74); and a history of the most celebrated engravers and their work (1686). A new ed. of his works was published at Milan, 1808.

Baldissera, Alessandro (b. 1838), an Italian general. He at first served in the Austrian army; but in 1866 entered the Italian, and in 1888 was appointed commander of the Italian forces in Eritrea. In 1889 he occupied Keren and Asmara, but was recalled in 1889. After the disaster of Adna he was again sent out to Africa, where he replaced General Baratieri, Feb. 1896, and entered upon negotiations for peace, which was declared 1897. He was then engaged in the evacua-

tion of Kassala.

Baldivia, see VALDIVIA.

Baldmoney, or Neum athamanticum, is the single species of the genus Meum, which belongs to the Umbel-liferæ. It is an aromatic plant with pale yellow flowers, and is a native of Europe, rarely found in England.

Baldness, absence of hair upon the scalp, which may be a sign of old age or may be congenital. Senile baldness (calvities or calvitium) is much more common in men than in women. Until the prime of life is passed, new hairs grow to replace the dead ones that fall out daily; it is not till failure in the nutrition of the scalp occurs that baldness begins. Congenital baldness (hypotrichosis congenila) usually gives place in time and with treatment to a

place in time and with treatment to a natural growth of hair, but may last through life.

Baldness that is not senile or congenital is generally due to ill-health, though in some families it is hereditary. Presenile baldness, or premature alopecia in men is frequently due to wearing tight leather bands inside to wearing tight leather bands inside the hat and closely fitting waterproof

is the best known. In 1681 the Com- and cloth caps. It may also be due to pendio della vita di D. Lazzaro monaco seborrhœio eczema, the chief characseborrhœic eczema, the chief characteristic of which is extreme scurfiness of the scalp. Nervous complaints, anæmia, child-bearing, and favus are all said to be causes of baldness. Alonecia arcata (baldness in patches) often attacks young persons, and is liable to be mistaken for ring-worm.

, such as lectricity, Salt air. and oint-

ment of mercury are applied to check baldness, but attention to the general health and occasional use of iron tonics are of the greatest service. Baldrey, Joshua Kirby (1754-1828),

engraver and draughtsman, was b, in England, and carried on his life-work between Cambridge and London. His works consisted of portraits after Reynolds, which were exhibited in the Academy in 1793 and 1794; re-ligious subjects as 'The Finding of Moses' (1785), after Salvator Rosa; classical subjects as 'Diana,' after Carlo Maratti; but his chef-d'œuvre is the E. window of King's College Chapel, Cambridge. In 1818 he pub. a work on the windows of that chapel.

Baldrick (Fr. baudrier, a belt), a broad belt, often of ornate design, worn in the middle ages across the body from shoulder to waist diagon. ally, which was used for supporting a quiver, bugle, or even a sword. It was generally affected by those of lower rank.

Balducci, Francesco, an Italian poet, was born at Palermo towards the end of the 16th century, and died at Rome in 1643. His work entitled Rimes estab. his reputation as one of the greatest anacreontic poets of Italy, and he also wrote Canzoni siciliane.

Baldung, Hans (c.1470-1545), called also Hans Grun, a celebrated old Ger. painter and wood-engraver, contemporary and the friend of Albert Dürer. He was born at Gmund, in Swabia, but lived chiefly in Switzer-land, at Strassburg and its neighbour-His woodcuts are variously signed H.B., H.B.G., and H.G. As a painter he was little inferior to Albert Dürer in expression, in colouring, or in finish.

Baldwin, the name of several cities, townships, and post-villages of N. America. It is also the name of a America.

to him, and he became a monk in the Valenciennes. Cistercian abbey of Ford, Devenshire, of which he was elected abbot within a year. In 1180 he was promoted to the bishopric of Worcester. In 1184 Henry II. removed him to the see of Canterbury, in spite of the opposition of the monks. In 1186 B. seized certain offerings paid to the convent in order to build a church and monastery for secular priests at Hakington; but the monks appealed to Rome, and he ln 1189 hel t Westminster

council when his natural brother Geoffrey was promoted from the see of Lincoln to that of York. B. successfully asserted the pre-eminence of the see of Canterbury, forbidding the bishops of England to receive consecration from any other than the archbishop of Canterbury. Having made a visitation in Wales, preaching the crusade, B. took the cross and followed Richard to the Holy Land in the company of Hubert, bishop of Salisbury, and Ranulf Glan-ville (1190). He died at Acre in the same year. B. wrote De Sacramento Allaris and other treatises of the same nature. His works are contained in the Bibliotheca Putrum Cisterciensium, 1662. Consult Hook's Archbishops of Canterbury, vol. ii.

Baldwin (d. 1098), an abbot and physician. He became monk of St. Denys; prior of Liberau, Alsace; abbot of St. Edmunds; and physician to Edward the Confessor and to William the Conqueror.

Baldwin, the name given to the counts of the House of Flanders. The countship was founded by Baldwin I., Bras de fer ('Iron Arm'). He married Judith, the daughter of Charles the Bald, without her father's knowledge, which brought about war between Flanders and Aquitaine. He died in 879 at Arras.

Baldwin II., his son, married Alfrith, the daughter of King Alfred

Baldwin III., 'of the handsome beard' (d. 1034), enlarged his territories by seizing Valenciennes, the Is. of Walcheren, and other parts of

Zealand. Baldwin IV., 'le Debonnaire,' was guardian to Philip, the young King of France, during his minority, 1060-7. B. married his daughter ' le Matilda to William of Normandy, whom he accompanied to England on lle died in 1067 and the Conquest. He died in 1067 and was buried at Lisle. Five other Bs. succeeded to the countship, the most important being Baldwin IX., who became first Latin Emperor of Constantinopie.

Baldwin I. (1171-1206), first Latin

Valenciennes. He joined the fourth crusade in 1200 as Count of Hainault and Flanders, and took part in the capture of Constantinople on behalf of Alexius, son of Isaac II., Emperor of Constantinople, against his uncle, the usurper, Alexius Angelus. Alexius was unable to keep his promises with regard to payment, and in consequence was murdered and Constantinople was sacked. B. was chosen emperor and crowned in 1204. Greeks, with the aid of the Bulgarians, massacred the Latins in Thrace; B. laid siege to Adrianople, but was defeated and taken prisoner by John, King of Bulgaria, 1205, and died in captivity, 1206. Consult Gibbon's captivity, 1206. Decline and Fall of the Roman Empire, vol. vi. (new edition, 1898).

Empire, vol. vi. (new edition, 1898).
Baldwin II. (1217-73), the son of
Peter II. (de Courtenay) and nephew
of B. I., succeeded as Emperor of
Constantinople in 1228, but was not
crowned till 1239, John of Brienne,
his father-in-law, acting as regent
during his minority. In 1261 he was driven out of his capital by Michael Palmologus, ruler of Nicæa, and took refuge in Italy. Consult Gibbon's Decline and Fall of the Roman

Empire, vol. vi. (new edition, 1898).

Baldwin I. (1058-1118), King of Jerusalem, was the son of Eustace, Count of Bouillon, and of Ida of Lorraine. He accompanied his two elder brothers, Godfrey and Eustace, to the first crusade in 1096, and took Tarsus in Cilicia. He there quar-relled with Tancred, the Norman, about precedence, and retired to Edessa, where he was proclaimed lord and assumed the title of Count of Edessa. On the death of Godfrey, 1100, he was called to succeed him in Jerusalem. He became protector of the Holy Sepulchre, and assumed the regal title, which his brother had refused, and was crowned on Christmas Day, 1100. He carried on continual warfare against the Turks; he conquered Cæsarea, Ashûod, and Jaffa, 1101. Tripoli. 1103, Acre. 1103. Sidon, 1111. and Ascalon finally sur-rendered in 1112. See Tasso's Jerusulem (canto i.) for a portrait of B. and his brother Godfrey.

'Fulcher, B.'s chaplain, is the chief authority for the events of his life in Historia Hierosolumitana. Consult Wolff's monograph, König Baldwin Jerusalem, and Röhricht's Geschichte des Königreichs Jerusalem,

Innsbruck, 1898.

Baldwin II., du Bourg, Count of Edessa, succeeded his cousin B. I. as King of Jerusalem, where he reigned from 1118-31. During his reign Tyre was taken, and the military and religious order of the Templars was Emperor of Constantinople, was b. at instituted for the defence of the Holy

Land. He abdicated the crown in favour of his son-in-law, Foulques of Anjou, in 1131, and retired to the monastery of the Holy Sepulchre. Consult Röhricht's Geschichte des Königreichs Jerusalem, Innsbruck, 1898.

Baldwin III. (1129-62), succeeded his father, Foulques of Anjou, King of Jerusalem, in 1143. Under his reign the Christians lost Edessa, which was taken by storm in 1145 by Zenghi, Turkish prince of Aleppo and father of the famous Noureddin. B. had to struggle during the greater part of his reign with the power and abilities of Noureddin. Louis VII. of France and Conrad III., Emperor of Germany, joined B.'s forces in an attempt upon Damascus, in which they failed. After his death the Christian kings soon began to lose their power in the E. He was succeeded by his brother Amalric or Amaury, who died in 1173.

Baldwin IV., the Leper, son of Amalric, reigned as King of Jerusalem from 1173-84, when he resigned in favour of B. V., son of his sister Sybilla, and a child of six years old. He died a few months after his uncle

in 1186.

Baldwin, Evelyn Briggs (b. 1862), an American arctic explorer, born at Springfield, Missouri. He accompanied Peary on the N. Greenland expedition as

and acted in second in com

man's polar expedition to Franz-Josef Land, 1908-9. He discovered and explored Graham Bell Land, 1899, and organised the Baldwin-Ziegler polar expedition, 1901-2. He has pub. sev. meterological reports, has contributed articles on arctic life to periodicals, and is the author of Search for the North Pole.

Baldwin, George (d. 1818), a mystical writer and traveller. He became consul-general in Egypt, 1786-98, and commander in the Malta campaign. 1801. He was the author of several political works, as well as those on

magnetic cures.

Baldwin, James Mark (b. 1861), an

University, 1885-87; professor of philosophy at Lake Forest University, Illinois, 1887-90, and at Toronto University, Canada, 1890-93; Stuart professor of psychology in Princeton University, 1893-1903. In 1903 he was appointed to the chair of philosophy and psychology at John Hopkins University. In 1897 he was awarded the gold medal of the Royal

Academy of Science of Denmark. He has written most extensively, the chief of his publications being Handbook of Psychology, 2 vols., 1888; Social and Ethical Interpretations, 4th ed., 1907; Mental Development of the Child and the Race, 3rd ed., 1907; Darwin and the Humanities, 1909; The Individual and Society, 1910. He has also ed. the Psychological Review, 1894-1909, and the Dictionary of Philosophy and Psychology, 1901-6.

Baldwin, John (d. 1545), was judge at the trials of Bishop Fisher, Sir Thomas More, Anne Boleyn, and Lord Darcy. He was M.P. for Hindon, Wiltshire, 1529-36; attorneygeneral for Wales and the marches, 1530-32; serjeant-at-law, 1531; and

chief justice of common pleas, 1535.
Baldwin, Robert (1804-58), a Canadian statesman. He was called to the Bar, 1825; became a member of the executive council of Upper Canada, 1836; solicitor-general, 1840; member of the united legislative assembly, 1841; attorney-general, 1842-43 and 1848-51. During his term of office he introduced several

reforms.

Baldwin, William (fl. 1547), wrote poetical and other works, and also acted as a

master. He formances for VI. and Mary

Magistrates, 1559.

Bâle, see BASEL. Bale, John (1495-1563), Bishop of Ossory, Ireland, was born at Cove in Suffolk, and entered Jesus College,

vich.
the
bedeVI.
but

on the accession of Mary he was forced to make his escape, first to Holland and then to Switzerland. On his return to England he was made a prebendary of Canterbury by Queen Elizabeth. He died at Canterbury, and was buried in the cathedral. His fame rests on his contributions to early English drama, notably Kinge Johan, which is a link between the morality plays and Elizabethan historical drama. A reprint was made by the Camden Society, 1838. He also wrote the first literary history of England in Lat., 1548, and one or two autobiographical pieces. His select works were published by the Parker Society, 1849.

Balearic Crane, see Herons.

Balearic Isles, a group of is. lying off the E. coast of Spain in the Mediterranean, the prin. of which are Majorca, Minorca, Iviza, Cabrera, and

They comprise a prov. Formentera. of Spain, and have an area of 1860 sq. m., with a pop. of about 320,000. The cap. is Palma, around which the olive is successfully cultivated, its growth forming one of the staple industries of the is. About an equal number of the inhabitants are engaged in the anchovy and sardine fisheries. In the 2nd century B.c. the islands were annexed by Rome, whose armies they joined in large numbers as slingers, in which method of warfare they were especially skilful. It is not, however, necessary to believe that the name of the is. is derived from the Gk. βάλλειν, to throw. In the first quarter of the 5th century the group was overrun by the Vandals, and subsequently passed under Arab dominion in the 8th century. It became a prov. of Aragon in 1343. The is. now attract many tourists, and a railway runs from Alcludia, a seaport town, by way of Inca to the cap., where good and cheap hotel accommodation is to be found.

Balechou, Jean Jacques (1715-64), a French engraver. His works are still much valued and eagerly sought for

by collectors. T nation of B.'s st

be found in the prints of wooner. Baleen, a name for whalebone when it is in its original state. See Whale.

Balen, Hendrik van (1560-1632), a Flemish historical painter, and the first master of Vandyck and Snyders, was born at Antwerp. He went early to Rome to study his profession, having acquired the rudiments from Adam van Oort. He was an excellent colourist, a good draughtsman, and

painted with great facility.

Balestra, Antonio, a painter, born at Verona in 1666. He was brought up as a merchant, but before his twentyfirst year he was studying painting under Bellucci at Venice. He afterwards studied under Maratta at Rome, and he eventually painted much more in the style of the Roman than of the Venetian: he, however, combined the chief beauties of Venetian colour with. characteristic correctness and

and was shortly after engaged in a Parisian theatre, where she obtained her sweet voice, sympathetic ex-dresses have been published, such as pression, and perfect vocalisation. Education of Neglected and Destitute Towards 1792 she returned to Stutt-Children, Higher Education in Scot-

gart and became singer in the court

of the Duke of Würtemberg.
Balfe, Michael William (1808-70),
one of the most celebrated of British musicians and composers, was born in Dublin, and early showed great talent, acting as conductor of the Drury Lane orchestra in 1824 when only sixteen. After an It. training he settled down to the task of composing operas, and produced his famous Bohemian Girl. which at once brought him prominently before the public, and by reason of its grace and the popular nature of its melodies has ever since retained a large measure of public favour. In 1845 he was appointed and protected and protected and public favour of the It. pointed conductor of the It. Opera, Covent Garden, and in 1857 produced The Rose of Castile. Later he staged Satanella, Blanche de Nevers, The Puritan's Daughter, and The Steeping Queen, none of which, however, achieved such success as his first production. He may be classed as of the school of such composers as Rossini

and Auber. Balfour, Alexander Hugh Bruce, Lord Balfour of Burleigh, was born in 1849, educated at Loretto, Eton, and Oriei College, Oxford. He took his B.A. degree with honours in 1871, and M.A. in 1872. He was created sixth Baron B. of Burleigh in 1869. The title had originally been bestowed The little had originally been bestowed upon his ancestor, Sir James B., in 1607, but the fifth baron, having been implicated in the Jacobite rising of 1715, the title was attainted. Lord B. of Burleigh is an honoured and in fluential Scottish nobleman; his family name is Bruce. He married Lady Katherine Hamilton-Gordon, sister of the seventh Earl of Aberdeen. He is a Conservative, and was Secretary for Scotland, with a seat in the cabinet, from 1895 to 1903, and has been Lord-Warden of the Stanneries since 1905. He has always taken an active and useful part in political, educational, and social reform movements. He was a member of the Factory Commission, 1874-75; member of the Endowed Institutions of Scotland Commission, 1882-89; chairman of the Educational Endowments Comthe characteristic correctness and the Educational Endowments Comsolidity of design of the Roman school, mission, 1882-89; chairman of the and is regarded as one of the most Welsh Sunday Closing Commission, able painters of his time. He died in 1889; of the Metropolitan Water 1734, according to Guarienti, but in Supply Commission, 1893-4; of the 1740, according to Zanetti and Oretti. Rating Commission. 1896; Parlia-Baletti, Rosina (b.1768), It. operatic mentary Secretary to the Board of singer, born at Stuttgart and named Trade, 1889-92; chairman of the Elena Riccoboni B. She made her Royal Commission on Food Supply début in Paris at the age of twenty, in the Time of War, 1903; and of the and was shortly after engaged in a Royal Commission on Closer Trade Parisian theatre, where she obtained Beducations Educations 200 Relations between Canada and the a brilliant success. She was noted for W. Indies, 1909. Some of his addresses have been published, such as

land. Lord B. of Burleigh was lord-; he spoke his speeches were noted not in-waiting to Queen Victoria, 1888-89; lord rector of Edinburgh University, 1896-99; and of St. Andrews, 1900. He is a large landowner.

Balfour, Rt. Hon. Arthur James, statesman and philosopher. P.C., F.R.S., D.L. of Lothian, M.P. for the City of London since 1906. He was born on July 25, 1848, being the eldest son of James Maitland B. of Whittinghame and the Lady Blanche Gascoigne Cecil, the second daughter of the second Marquis of Salisbury. He is thus descended from one of the most ancient families of Scotland and allied also to one of the greatest political families in England. He was educated at Eton and proceeded from there to Cambridge, where he entered Trinity College and took his master's In 1874 he commenced his long political career by being returned as the member for Hertford in the Conservative interest: this constituency he continued to represent until 1885 when he was returned for E. Manchester. In 1878 he became private secretary to his uncle the Marquis of Salisbury, who, on the resignation of Lord Derby, had become foreign secretary. In his capacity as private secretary Mr. B. saccompanied Lords Beaconsfield and Salisbury to the Berlin Congress where he received his first lesson in international politics in the settlement of the affairs of Russia and Turkey. About the same time, however, he pub. his famous philosophic treatise, The Defence of Philosophic Doubt (1879). This raised his literary reputation and left no doubt but that if he cared to devote himself to literature he would soon establish a considerable reputation. During the years which followed he devoted him-During the self equally to politics and study. In 1880 on the accession to power of the Liberal government he was released a member of the fourth party. This fourth party was made up of Lord Randolph Churchill, Sir Henry Drummond Wolff, and Sir John Gorst, together with Mr. B. The other three members of this party were very much more active than himself, and he was always regarded more or less as the odd man' of the party. In fact during the first half of this decade B. was regarded as the scion of a noble house who played with politics because it was the tradition of his house to do so. Many considered that his health was too uncertain to admit of his taking an active part in politics, threats and insults. Mr. B. proceeded and his dilettantism and languor with his work, which consisted of the simply added to the belief that he would not seriously adopt politics as irreland. How far he was successful is a career. On the occasions on which a question which is settled variously

for their oratory or eloquence but for their academic qualities. His strength of character was considerably under-estimated, and this taken in con-junction with his ill health only served to strengthen the idea that his political career would be short. With the beginning of Lord Salisbury's first administration Mr. B,'s active official career began. As he himself pointed out on the occasion of his resignation in 1911, he began then a career which lasted for twenty-six years, twenty of which were actually spent in office under the crown. In 1885 he became president of the Local Government Board, but this office he did not hold long, as the first Salisbury administration came to an end at the begin-ning of 1886. The second Salisbury administration formed in the July of 1886 saw Mr. B.'s appointment to the chief secretaryship of Scotland and a seat in the cabinet. In the early part of 1887 one of those accidents of politics raised Mr. B. to a position in which he astonished his critics and gained for himself a great and lasting reputation as a man of character and a firm statesman. In that year Sir Michael Hicks Beach (later Viscount St. Aldwyn) resigned the chief secretaryship of Ireland owing to an affection of the eyes. The political world was astonished by the appointment to the vacant position of Salisbury's nephew, Mr. B. The opposition jecred at the appointment of a man whom they regarded as a flaneur and not as a seriously-minded politician. This was Mr. B.'s first great appointment, and by the work which he so ably did there, by the firmness with which he suppressed crime, by the tenacity with which he clung to his policy, he made himself the most prominent of Conservative statesmen, the most loved and re-spected by his adherents, the most from his secretarial duties and became hated but at the same time the most respected by his opponents, the Nationalists. The days of Bloody Nationalists. Balfour ' have not yet been forgotten

nor forgiven.

The criticism which had been vhich followed ie Irish Land

and severity of which he had not been accounted of which he had not been accounted equal, he checked the varying tendencies in Ireland to disorder. His work covers one of the most exciting periods of Irish history, and in the face of open outrage, in the face of threats and insults. Mr. B. proceeded

remains that by the opinion of friend and foe alike Mr. B. estab. his reputation as a great statesman during this period. That he was helped by events cannot be denied; the Parnell Commission followed by the O'Shea divorce case, which led to the down-fall of Parnell and the breaking up of the Irish party, must have aided him considerably. In 1891, on the death of Mr. W. H. Smith, he became the first head of the Treasury and leader of the House of Commons. During his first tenure of this post, he introduced a local government bill for leland, which was withdrawn just before the dissolution of 1892, a dissolution which led to the downfall of the Unionist party and the accession to power of the Liberals. On the de-feat of the Liberal party in 1895 he again became first lord of the Treasury and leader of the House of Commons in the administration of Lord Salisbury. During the three years in opposition, Mr. B. won for himself added fame by his conduct of the opposition. During the early days of this second period of leadership Mr. B.'s attitude on the education questions called forth criticism not only from the opposition but from his own party as well, and this feeling was added to by his suggested scheme for a Roman Catholic university for Ireland. His conduct of foreign affairs during the absence and illness of the premier, Lord Salisbury, however, added very considerably to his reputation. His negotiations with Russia concerning northern China brought to a successful close, and by means of a compromise he succeeded in establishing friendly relations with Russia in place of a threatened quarrel. With the remainder of the Conservative cabinet he took full responsibility for the negotiations with the Transvaal, but his conduct of the war, when war did break out, met with very considerable criticism, criticism which led even the suave imperturbable Mr. B. to become heated in debate. In July 1902 Lord Salisbury re-

signed and was succeeded as premier by Mr. B. The administration which followed will probably be remembered chiefly by the fiscal questions which came to the front during that period.

as the bias of varying authorities, premier, and declared himself in differs; it only remains to be said that he reduced crime enormously in advancing at this period the full Ireland, but the criticism that he tempth that Mr. Chamberlain had, nor turned Ireland into an armed camp cannot be altogether denied. The fact camp of the free traders. By-election went against the camp of the free traders. By-election after by-election went against the ministry, and in Nov. 1905 the government resigned, a government being formed by Sir Henry Campbell Bannerman. The election which followed brought about the complete downfall of the Unionist party, Mr. B. himself being defeated in E. Manchester, a seat he had held for twenty years. A safe seat was found for him in the City of London, which constituency he still represents. Up to 1911, Mr. B. led the opposition in the House of Commons; many difficult problems leading to much bitter debating being brought to the front. On the question of the Veto Bill, Mr. B. sided with Lord Lansdowne and found himself opposed by a considerable and influential section of his party. After the Veto Bill had been passed, and just previous to the intro-duction of the Home Rule Bill, Mr. B. resigned his position as leader of the party. For some considerable time his position had been threatened by his own party, and his leadership was regarded as too pacific. On Nov. y, 1911, at a meeting of his own constituents, he gave his reasons for resigning. He pleaded his long tenure of office, and said that his health forbade his further continuance in such an arduous post; he, however, did not resign his scat, and has since his resignation been of very great help to his party. His resigna-tion was deplored by all parties. Mr. Asquith in a speech on Lord Mayor's Day, 1911, said that Mr. B. was by universal consent the most distin-guished member of the greatest deliberative assembly in the world.' By many he is still regarded as the future leader of a Conservative administration. Amongst his varied publications are: A Defence of Philosophic Doubl, 1879; Essays and Addresses, 1893; The Foundations of Belief, 1895; Economic Notes on Insular Free Trade, 1903. See Arthur Lunes Baltour Philosopher and James Balfour, Philosop Thinker, W. M. Short, 1912. Philosopher and Balfour, Edward Green (1813-89),

surgeon-general and author. entered the medical dept. of the Indian Army 1834, and became a surgeon 1852. His chief work is the Encyclopædia of India, 1857.

Balfour, Francis Maitland (1851-The Conservative cabinet, surprised S2), an eminent biologist, younger by the sudden proposals of Mr. brother of Mr. Arthur B. Born at Chamberlain, divided itself into two camps. Many resignations took place, where he displayed great interest in but Mr. B. retained his position as natural science, in which he was

assisted by a friendly master. Passing 88. to Trinity College, Cambridge, in cha 1870, he was elected natural science scholar in the following year, and obtained the second place in the Natural Science Tripos in 1873. Animal morphology next claimed his attention, and he succeeded in obtaining one of thetwo seats allocated to Cambridge at the Zoological station at Naples. had been greatly impressed by the work of Sir Michael Foster in comparative embryology, and in 1880 pub. the first vol. of an extended treatise on that subject, following it with a second in 1881. The first of these vols. dealt exhaustively with the embryology of the invertebrata, the second pursuing the subject as regarded the vertebrata. Mr. B. was resolute in refusing all offers of professoriates from other universities, and continued to reside at Cambridge, which at length recognised his single-mindedness and ability by the institution of a special chair of animal morphology, of which he was appointed first professor. But his health, never robust, was undermined by a bad attack of typhoid fever. On his convalescence he visited Switzerland, and whilst there he essayed the ascent of the Arguille Blanche, Mont Blanc, which at that time had not been attempted. In this effort he lost his life.

Balfour. Gerald William, younger brother of the Rt. Hon. A. J. B., was born in 1853, and is the fourth son of the late J. M. B. He was educated at Eton and Trinity College, Cambridge, where he foel. where he took a first class in the classical tripos. In 1878 he was appointed assistant tutor and elected In 1885 he was returned to the House of Commons as member for Central Leeds. In 1891 he was made a member of the Royal Commission on Labour, and became a privy councillor in 1895; Chief Secretary for Ireland, 1895-1900; President of Board of Trade, 1900-5; President of Local Government Board, 1905-6.

He was i: an Irish L did much

party and which estab. county councils and district councils, one half of the expenditure of those bodies being met from the imperial exchequer. introduced the Unemployed Workmen's Act, 1905. Much interested in psychical research.

cerested in psychical research.
Balfour, Isaac Bayley (b. 1853), a
Scottish botanist, born in Edinburgh.
He studied at the universities of
Edinburgh, Strassburg, and Würzburg; he was regius professor of
botany at Glasgow, 1879-84; Sherardian professor of botany at Oxford
and fellow of Magdalen College, 1884-

In 1888 he accepted a similar chair at the University of Edinburgh, and is regius keeper of the Royal Botanic Garden in that city. In 1880 he explored the is. of Socotra, in the Indian Ocean, and in 1888 pub. the results of his travels in the Transactions, vol. xxxi., of the Royal Society. Edinburgh. Among his other publications are Bolany of Rodriques, 1878, and a translation of Goebel's Organo-graphy of Plants, 2 vols., 1900-5. He has also edited The Annals of Bolany since 1887.

Balfour, James (1702-95), of Pilrig, in the shire of Edinburgh, was admitted an advocate of the Scottish Bar in 1730. B. was afterwards appointed sheriff-substitute of the co. of Edinburgh, and, having occupied himself much with philosophical science, he early became an opponent of the celebrated David Hume, whose speculations he attacked in two anonymous treatises, the one entitled a Delineation of Morality, the other, Philo sophical Dissertations. In 1754 he resigned his judicial office, having on the death of Professor Cleghorn, in August of that year, been elected his successor in the chair of moral philosoph.

in M

law; what appear to have been his lectures while in his former situation, under the title of Philosophical Essays. the spring of 1779 he resigned the chair of public law, and retired to Pilrig, where he died.

Balfour, Sir James, of Denmylne and Kinnaird, Bart. (c. 1600-57), an eminent antiquary. He early dis-played a capacity for poetry, and translated Lat. verse into the Scottish vernacular. He studied heraldry at the College of Heralds in London, and later wrote the Monasticon Scoticum, a collection of Scottish ecclesiastical charters. In 1630 he was created Lord Lyon King-at-Arms, and in 1633 was made a baronet. He was deprived by Cromwell of his office, but solaced himself with the collection of heraldic antiquities, and framed abridgements of Scottish charters and chronicles, notably the Annals and Short Passages of State.

Balfour, Sir James, of Pittendreich (d. 1584), an eminent Scottish lawyer of the 16th century, studied for the church. Implicated in the murder of Cardinal Beaton, in 1547 he was sent with other conspirators to the French galleys, whence he escaped in 1550. Returning to Scotland, his lack of Protestant zeal drew upon him the wrath of Knox. Appointed rector of Flisk in Fife, he was created a lord of session or judge by Queen Mary in In 1567 he was appointed 1563.

governor of Edinburgh Castle, and, having assisted the enemies of the queen, was after her dethronement made president of the Court of Session. He was forced to retire to France because of a charge brought against him of assisting in the murder of Darnley, but later returned. He compiled Practicks of Scots Law, a famous hand-book of the Scottish legal system.

Balfour, John Hutton (1808-84). an eminent botanist, was b. at Edinburgh in 1808, and graduated at the university of his native city. Originally intended for the church, he later abandoned his intention of entering it, and in 1831 took his M.D. degree. In 1841 he was appointed professor of botany in the University of Glasgow, a seat he held until 1845, when he was called to fill a similar position at his alma mater. He was also appointed keeper of the Royal Botanic Gardens, where he had been preceded by Hope, Rox-burgh, and Buchanan. This dept. of his work was so assiduously fostered by him that the botanical effort dis-played in the outlay and scientific arrangement of these gardens brought him widespread recognition botanists all over the world. He was dean of the Faculty of Medicine in ears, ultimately

rious appointvas created an universities of

Edinburgh, Glasgow, and St. drews. He died at Edinburgh.

Balfour, Lord, of Burleigh, a Scottish peer, d. 1688. The only remarkable circumstance concerning him is that he was mistaken by Sir Walter Scott for Balfour of Burley, and as such introduced into the novel of Old Mortality.

Balfrush, or Barfrush, a tn. in the Persian prov. of Mazanderan, situated on the R. Bhawal, some 12 m. from The riv. is not the Caspian Sca. navigable, and it is necessary to land all merchandise and other goods at the port of Meshed-i-ser There is a large trade with Russia, and silk and rice are exported. The pop. is variously stated at from 10,000 to 50,000.

Balguy, John (1686-1748), a theologian of repute, was b. at Sheffield. He was educated at Cambridge, and in 1718 pub. two pamphlets in defence of Bishop Hoadley. In other works he stoutly defended Dr. Clarke and his views against such antagonists as Tindale and Shaftesbury. He wrote Essays on Redemption, which exconsiderable broadmindednoise for his time, and for his services, personal and otherwise, was appointed a prehend of Salisbury in 1727 by Hoadley. He died at Harrogate.

Balguy, Thomas (1716-85), divine,

educated at Ripon Free School and St. John's College, Cambridge, where he held the Platt Fellowship, 1741-48, and was assistant-tutor to Dr. Powell. lecturing on moral philosophy for sixteen years. Among the various posi-tions he held at different times were those of public orator, tutor to the Duke of Northumberland, rector of North Stoke, prebendary of Win-North Stoke, prebendary of Win-chester, archdeacon of Salisbury, archdeacon of Winchester, and vicar He published many disof Alton. courses, sermons, essays, and a Life of his father, John Balguy.

Bali, or Bally, a tn. on the Hugli. Bengal, 4 m. N. of Howrah; pop.

about 17,000.

Bali, Bally, or Little Java, an is. of the Malay Archipelago, lying E. of Java, from which it is separated by the Bali Strait, and W. of Lombok. Area about 2100 sq. m. The pop. is estimated at 700,000. There are volcanic mts., the highest being Gunong Agung, 10,400 ft. The country is split up into seven dists.: (1) Buleleng and Jemhana on Dutch ter.; (2) Badung, Mengui, Tabanan, Bangli, and Klung Lung, which are autonomous states. The Dutch rule was estab. in 1849, and the Residency of Bali and Lombok is at Buleleng, in the N. The products of the soil are Bali, Bally, or Little Java, an is. of The products of the soil are rice, cotton, tobacco, sugar, coffee, and indigo. Fine sculpture and metal work is executed, and the women take a share in the trade and industries. The religion of the people of Bali and the neighbouring is. Lombok is Brahminism, in a form even older than that now found in India. There is a written language called Ballinese. Van Vlijmen's Bali, Amsterdam, 1875. and Scot. Geog. Mag. 1900. pp. 44-46.

Balihri, a tn. in the Jabalpur dist. of the Central Provinces of India. In former times it was a city of much prosperity. It contains many temples.

mples. Pop. about 3000. Balikesri, or Balakhissar, or Balikshehr, cap. of the Karasi sanjak of the vilayet of Brusa, Asia Minor. It is situated on a fertile plain, 575 ft. high. The chief products are opium, silk. and cereals. A large fair is held on Aug. 15. Pop. about 20,000.

Balin and Balan, two brothers in the Arthurian legend. They met on their wanderings, and failing to recognise each other, fought, and both Consult Malory, Morte the edition, 1868). There were slain. d'Arthur (Globe edition, 1868). is also an early poem called Balan, belonging to the Charlemagne cycle, the English version of which is The Sowdan of Babylon.

Balinag, a tn. of Luzon, Philippine

It is in a fertile dist., and manufa-

Pop. 16,000. silk and cotton.

at all, and this was due to a very great extent to the aloofness of the conquerors, to their religion, and to the obvious contempt with which they treated the subject races. the third decade of the 19th century the war of Gk. independence began, an independence which was recognised by the Turks in 1829, and in 1830 the independence of Servia as a tribute-paying principality was also recognised. Practically no changes took place until the treaty of San Stefano in 1878, which lowered very considerably the power and prestige of the Turks in Europe, and created a large Bulgarian principality which threatened the power of Turkey still The treaty of Berlin which followed cut down the greater part of this Bulgaria, made it less threatening, and also at the same time created the final independence of Servia, Roumania, and Montenegro, handed over Bosnia and Herzegovina to Austrian administration, by whom they were selzed in 1910. In 1897 Crete was withdrawn from the ad-ministration of Turkey, and the Greco-Turkish War which followed in the same year was won by Turkey, who received a few places of strategical importance on the frontiers of Thessaly. In 1908 a revolution of the Young Turks drove Abdul the Danned from the throne of Turkey, and estab. a constitutional gov. under his brother. In 1911 war broke out between Turkey and Italy over the vexed question of Tripoli, and at the present time the Young Turk party seem to be on the verge of extinction.

Balkan War, The. This war, waged in the autumn of 1912 and the first European war of the 20th century, was one of the shortest, most sanguinary, and, in the truest sense of that much abused term, the most epoch-making war of modern times. The epoch of European history brought to a close by this war, was that which opened in 1453 with the fall of Constantinople, capital of the Byzantine empire, which, together with the whole Balkan Peninsula, was submerged beneath the wave of Turkish invasion from Asia Minor. This wave spent itself when it reached the gates of Vienna, and through the following centuries the tide of Ottoman dominion gradually receded as one by one the subjugated Christian races achieved a partial or complete autonomy. The waning of the Cresautonomy. The waning of the Crescent was only stayed by the foolish jealousies of the Great Powers of Europe and, to a certain extent, by the rivalries of the petty Balkan states themselves. The Crimean War (1854-6), between Russia on the one hand and England and France on

the other, was undertaken by the latter powers to maintain rule in Europe, and in 1885 Bulgaria and Servia, for a brief period, were at war with one another because the latter country feared a territorial aggrandisement by Bulgaria in Eastern Rumelia. On all these jealousies the crafty sultan, Abdul-Hamid II., successfully played, and thus for many years secured an immunity, during which he continued to misgovern and oppress his European provinces. He might have continued in this rôle till death had put an end to his schemes, but his misgovernment and despotism were too much for even his Mussulman subjects. He was accordingly deposed in 1909, and a constitutional regime inaugurated, with his long-imprisoned brother, Mohammed V., as sultan.

The hopes raised by the successful volution of the Young Turks revolution of the that the Christian population of Turkey in Europe would be better treated proved to be illusory. It is true, so far as the Turks themselves were concerned, that some reforms were effected. It is true also that Jews and Christians were allowed to become officers in the army, but the non-Islamic population (which in Turkey in Europe numbered about three-fifths of the total population) was practically no better off. Again and again did the small states who aı P

f.ì Albania, Macedonia, and Thrace. They appealed to the Great Powers. who formed the so-called ' Concert of Europe,' to fulfil the obligation to which they had solemnly pledged themselves by the Treaty of Berlin in 1878, but the slow-moving mill of international diplomacy ground out no modicum of reform. The muchprated 'Peace with Honour' became a by-word of repreach among the
Pelice was secured
at the price of
tt last, despair-

ig done by the themstates

selves decided to cut with the sword the Gordian Knot. Greece had already, in 1897, fared somewhat badly in a war with Turkey. But what each state was individually too weak to accomplish might be effected by union. Sinking for a while their differences, Bulgaria, Servia, Greece, and Montenegro combined to form the Balkan League, a league having for its object the sateguarding of the common interests of their nationals in the Turkish empire. By this means a striking force was formed of ap-proximately the same strength as the Ottoman troops, with the added; attention to the war advantage of being able to attack on commence. all sides at once. A suitable opportunity to commence hostilities pre-sented itself towards the end of September 1912. The Ottoman administration was then suffering from itself and without the aid of its allies the strain of the year old war with Italy (albeit that war was confined to parts of the country. Thus the Bulits Tripolitan territory); the rising of garians alone, under the supreme the Albanians, restive under the concommand of General Savoff, and with stitutional régime; and the struggle General Dimitrieff as his principal in the government between the relieutenant, on Oct. 22 to 24 at Kirk actionists and constitutionalists. On Kilisse turned the right flank of the Sept. 30 (a year and a day after Italy army under Nazim Pasha, the Turkish Sept. 30 (a year and a day after Italy had declared war on Turkey) the order was given by Bulgaria and Servia for a general and simultaneous mobilisation. Greece and Montenegro immediately followed suit, and the next day Turkey had perforce to reply by a general mobilisation. The next few days were spent by the startled Powers in the endeavour to find a formula which would preserve an artificial status quo in the Balkans. The dusty, inoperative, and almost forgotten clause xxiii. of the Treaty of Berlin—an article by which the Great Powers pledged themselves to compel Turkey to introduce reforms into its European provinces—was hastily taken out of the pigeon-holes of the various chancelleries, but on Oct. 8 the smallest of the allied states. Montenegro, without even an ulti-matum, declared war.

of the moment From apparently calculated indiscretion of King Nicholas it was obvious of King richors to was obvious that it would be only a matter of a few days before Montenerro's allies joined the fray. Events moved very rapidly. On Oct. 10 the Great Powers by their collective note made a last attempt to induce Turkey to grant such reforms as would avert war, and three days later an identical Graco-Serbo-Bulgarian note was presented to the Ottoman government. key's reply to the latter was to de-clare war on the allies on Oct. 17. In the meantime the Montenegrins, under the command of Generals Vukotitch (commander-in-chief) and Martinovitch, had invaded Albania with two or three columns, captured successively Detchitch, Skiptchanik, Tuzi, and Berane, and had invested Tuzi, and Berane, and had invested of the Bulgarians and their desire to Tarabosh and Scutari. Also before Turkey declared war on the allies began on Nov. 7, and which severely two other significant events had taken place: the admission of deputies from Crete into the Greek Chamber on Oct. 14, and the conclusion on Oct. 15 of the Peace of Ouchy (or Lausanne) between Turkey and Italy, a peace in which Turkey recognised the fait accompli of Italian occupation of Tripoli, and at the same timeenabled Turkey to give undivided

about

The war was characterised by one or two marked features, perhaps the most outstanding of which was the fact that each of the invading armies by overcame Turkish resistance in various commander-in-chief, of whose forces Mahmud Mukhtar Pasha and Abdullah Pasha were important leaders. The Turks fled from Kirk Kilisse in great confusion, abandoning in their flight large quantities of stores and guns. The Bulgarian losses alone were estimated at 2000 killed and 5000 wounded. By this turning movement the Turkish forces were divided: some were driven south towards the Ægean Sea: the main body retreated towards Constantinople; while the remainder speedily found themselves invested in Adrianopole. Hotly pursued by the Bulgarians, Nazim nevertheless succeeded in rallying his panic-stricken forces, and a stand was made in an engagement extending over a front of 100 m. In this great battle, known officially as that of Lule-Burgas-Bunarhissar, which was fought on Oct. 28 to 31, success at first seemed to attend the Turkish arms, for the right wing more than held its own, but at length the left wing was smashed in the carnage that raged round Lule-Burgas. This compelled the Turkish right and centre to fall back; the retreat again became a stampede which was only checked at the banks of the Chorlu. Eventually this position was abandoned for the stronger Chatalja lines. The casualties in this engagement reached the enormous total of 55,000. of which 15,000 were in the Bulgarian forces. The captures from the Turks included 75 guns, 2800 prisoners, and much stores and ammunition. subsequent fighting before the Chatalia line of forts was of a desultory nature, due in part to the exhaustion of the Bulgarians and their desire to

a great victory. The Turks fled, a holy war, for on Nov. 8 the Sheikh ulleaving behind them 98 field guns, Islam ordered the preaching of a ichael 15 howitzers, and the road open to Uskub. The losses on both sides were heavy; the Turkish casualties being estimated at 5000. On Oct. 26 Uskub was occupied by the Servian troops, and a few days later (Nov. 2) King Peter made his triumphal entry. In a very short time the Servian troops had swept allover Macedonia, and a detachment was sent to occupy ports on the Adriatic. Monastir, at which the remnant of Zeki Pasha's army had gathered, surrendered on Nov. 18, after three days' engagement in its environs, in the course of which the Turks had 17,000 killed and wounded. At the trifling cost of 1700 casualties. the third largest town in Turkey fell into the hands of the Servians, together with 45,000 prisoners and 66 guns. Alessio, on the Adriatic, was occupied two days later.

Unbroken success likewise attended the Greek army, directed by the Crown Prince, Constantine. Advancing through the mountain defiles of Thessaly, a few minor engagements were fought with a numerically weaker Turkish force under Hassan Tahsin Bey, which retreated towards Salonica, leaving guns and stores behind. The Turks lost 17 guns at Selfidje, and on Nov. 1 were badly beaten at Yenidje near the Vardar. The Greeks crossed the Vardar, and on Nov. 9 Salonica, the 'Hamburg of Eastern Europe,' and the second city of Turkey in Europe, surrendered without further fighting. The Greeks took 20,000 prisoners in this coup

In the west the Montenegrins were apparently content to let disease and starvation, aided by a vigorous bombardment, work its devastating effects on Scutari and Tarabosh, which were closely invosted by them and stoutly defended by the Turkish

leader, Hassan Riza Rey. Another notable feature of the war was the presence in the field of all the sovereigns of the allied states. These were King Ferdinand of Bulgaria, Peter of Servia, George of Greece, and Nicholas of Montenegro. From the military point of view one or two facts would seem to have been demonstrated: first, the utility aeroplanes in war, of which had machines Bulgaria several: second, that the bayonet was still a most effective weapon, especially in a final assault after artillery preparation; third, that the success of the So far as the naval side of the war

is concerned there is little of importance to record. Three only of the combatants possessed any fighting ships-Greece, Bulgaria, and Turkey. The fleet of the latter country has always been pour rire, but it nevertheless served to establish a blockade of the Bulgarian coast in the Black Sea, and it bombarded a few coast towns, notably Varna. Also its presence served as a menace to the Bulgarian left wing before the Chatalia lines. On Nov. 10 the Turkish fleet in the Sea of Marmora bombarded Rodosto, a Turkish town then occupied by the Bulgarians. On Nov. 21 the Turkish cruiser Hamidich, accompanied by two destroyers, was attacked by four Bulgarian torpedo-boats about fifteen Bulgarian torpedo-boats about fifteen miles from Varna in the Black Sca. Turkish fire sank one torpedo-boat and damaged another, but the Hamidich was struck in the bows and commenced to founder. Her captain—Raouf—was, however, able to bring her safely back to Constantinople. On the other hand, the Greek navy (strengthened by four English-built formedo-hoat destroyers bought from torpedo-boat destroyers bought from the Argentine Republic just prior to the outbreak of hostilities) occupied the islands of the Ægean Archipelago, beginning with Lemnos on Oct. 21, and finishing with Mitylene, Nov. 22. Perhaps the most daring naval feat was that performed by a Greek torpedo-boat which penetrated into Salonica harbour, and right under the salomea harbour, and right under the guns of the forts fired three torpedoes into the hull of the Felh-i-Bulend. On Nov. 12, Turkey—after fruitlessly appealing to the Powers for mediation (Nov. 4)—asked Bulgaria for an armistice. On Nov. 25 delegates met at Chatalja to arrange terms for this armistice and the expertual peace. armistice and the eventual peace. The armistice was signed on Dec. 3 by Turkey and all the allies except Greece, who maintained that the terms were too favourable to Turkey. It is estimated that during the first

six weeks of the war the Turks lost from all causes 200,000 men. The allies captured 500 guns, 100,000 rifles, and vast quantities of stores and ammunition. The total casualties

and ammunion. The total casualties of the Balkan League are put at \$0,000. After the signing of the armistice, which provided that beleaguered Adrianople and Scutari should not be revictualled, the peace delegates first assembled on Dec. 16 at St. James's Palace, London, and on the following day was held the first meetfollowing day was held the first meet-ing at the Foreign Office of the Conference of Ambassadors. Among the more important delegates were at any rate, the war was regarded as Dr. Daneff (President of Bulgarian

Sobranje), M. Venizelos (Greek Prime wards preventing Servia from gain-Minister) and Reshid Pasha, the ing territory on the Adriatic Sea, principal Turkish delegate, whilst thus cutting off possible Austrian the Conference of Ambassadors in expansion towards Salonica and the cluded the ministers representing the

Great Powers in London.

Throughout the whole period of negotiations the Greek forces continued to operate against the Turks mainly in the Epirus, and for this reason the Turks at first objected to jection was eventually waived, and after much delay the issue was fined down to a willingness of Turkey to surrender the Ægean islands and all her European possessions west of Adrianople. Over Adrianople and the islands the Turks assumed a non possumus attitude, and for a while the peace conference was suspended. At length, yielding to the pressure of the Powers applied by a Collective Note, the aged Grand Vizier, Kiamil Pasha, advised by the Grand Council he had summoned, agreed to surrender on this point.

While actually engaged in drafting the reply to the Power's Note the downfall of Kiamil's government was brought about on Jan. 23, 1913, by an almost bloodless coup d'état, engineered by the Young Turks, led by Talaat Bey and the popular Enver Bey (newly returned from fighting the Italians in Tripoli). In the fracas in the corridors of the Sublime Porte propaganda was disseminated. Turkish commander - in - chief, Nazim Pasha, was killed. Kiamil was succeeded in the Grand Vizierate by the redoubtable Mahmud Shevket Pasha, the leader of the Young Turk

revolution of 1908.

The new ministry announced as its The new ministry announced as its policy, 'No Surrender,' and that the retention of Adrianople was a sine qua non. In view of this sudden change of front the B. delegates met on Jan. 28, and decided to present the Turkish delegation with a Note. This Note set forth the opinion of the allied delegates as to the inutility of their further remaining in London, as it appeared certain that the new Turkish government was unwilling to cede Adrianople and intended therefore to precipitate a

renewal of the war.

No account of the B. War would be complete without some reference to the external forces at work. Hovering in the background were the two Great Powers most vitally interested in the B. peninsula, viz. Russia and Austria. Associated with Austria were her allies of the Triple Adliance, Germany and Italy, while Russia was supported by her ally, France, and that other member of the Ententegroup, England. Austria's cance, and some of the pastimes into policy was in the main directed to-

Ægean Sea. For this reason she encouraged the idea of Albanian autonomy. On the other hand, Russia, assuming her historic rôle as protector of the Slav peoples, was ranged against Austria. Matters were further complicated towards of 1913 the end January Roumania's demand for 'compensation' from Bulgaria, a demand which included the cession to her of Silistria. For further particulars, see TURKEY.

Balkh, the cap. of a principality of that name in Northern Afghanistan. and once known by its Persian name Bakhtri as the cap, of anct. Buctria. It is situated 23 m. S. of the R. Oxus. and the ruins of its anct. site are still distinctly discernible, having a circumference of at least 20 m. Four miles to the eastward lies the new tn., called Mazr-i-Sherif, the modern Afghan cap. of the prov., with a pop. of about 30,000. It was here that the Greco-Asiatic civilisation first found expression, but prior even to this the magi of Persia founded the Zoroastrian religion. On the death of Alexander the Great it became incorporated with the Greco-Syrian kingdom of the Seleucide, and later figured as a centre whence Buddhistic natives designate it Am-ul-Beled, mother of cities, and trust implicitly in its rehabilitation to the condition of its ancient splendour. The neigh-bouring soil is fertile in the extreme, and large quantities of wheat are grown, but deserts and mountainous country are contiguous, and its position almost on the borders of Afghanistan and Turkistan does not conduce to great security.

Balkhash, a great lake lying in the vicinity of the Kirghis steppes, and contiguous to the ter. of Semipalatinsk in Western Siberia. It is 150 m. in length, with a breadth of half that distance, and is the fourth largest inland sea in the Russian Empire. For six months in the year, from November onwards, it is frozen over. During the rest of the year vessels carrying merchandise from one part of the country to another ply busily upon its surface, and many ships are launched from the yards founded by governmental and private enterprise at the mouths of the sev. rivs. which feed it, notably from the establishments at the mouths of the Karatal.

enter, such as the B. game of certain American Indian tribes or that of the ancient Mexicans, are known to have possessed an astronomical basis Again, the struggle of good against evil is thought to have been typified by certain anct. Persian B. games, the sphere in this instance representing the world. In Greece and Rome in classic times various B. games were indulged in by young and old, and in mediaval England and France tennis and pell mell were favourite pastimes. In more modern times first golf, native to either Holland or Scotland, and cricket were evolved as B. games, and football, perhaps the most popular of all, has been a game of both the Scottish and English people for centuries. Polo and base-ball, the latter a game of American origin, are the most modern B. pastimes.

Ball, Sir Alexander John (1757-1809), served in the Mediterranean under Lord Nelson. In 1799 he was elected by the Maltese as their chief and the president of their congress.

He became rear-admiral, 1805. Ball, Benjamin (1833-93), Fr. doctor, was b. at Naples and d. at Paris. He became professor of mental pathology in 1877 and member of the Academy of Medicine in 1883. Among his best pub. works on medicine may be mentioned La Médecine Mentale à travers les siècles, 1880; Leçons sur les maladies mentales, 1881-83; and La Morphinomanie, 1884.

Ball, John, an agitator who assisted to stir up the people during the rebel-lion headed by Wat the Tiler in 1381. His propaganda spread like wildfire among the peasantry, and spurred them on to many excesses. On the collapse of the revolt and the death of Tiler he was captured and put to

death. John (1818-89), an Irish Ball, Ball, John (1818-28), an Irish scientist, politician, and traveller. He was called to the Irish bar, 1845; became M.P. for co. Carlow, 1852; undersecretary of state for the colonics, 1855-57; and first president of the Alpine Club, 1857. He pub. The Alpine Guide, 1863-68, and wrote works on the Alpine flora and glaciers, and on physical and geographical and on physical and geographical science.

Ball, John Thomas (1815-98), an Irish lawyer. He was called to the Irish bar 1840, and to the inner bar 1854; and became solicitor-general 1504; and became solicitor-general for Ireland, 1868; attorney-general, 1868 and 1874; M.P. for Dublin University, 1868; lord chancellor of Ireland, 1875-80; and vice-chancellor of Dublin University, 1880. He wrote The Reformed Church of Ireland, 1886, and an Historical Review of the Langelding Suctement of Proceedings of the Control of States Legislative Systems operative in Ireland, 1888.

Ball, Sir Robert Stawell, LL.D., F.R.S. (b. 1840), the well-known astronomer, was b. in Dublin and educated at Trinity College. Lord Rosse, the celebrated authority on astronomy, appointed him his astronomer in 1865, and in 1873 he was created professor of applied mathematics in the Royal Irish College of Science. In the following year he quitted that post to fill the more important one of professor of astronomy at Dublin, with which went the office of astronomer royal for Ireland. Sir Robert is known widely as a lecturer on the popular side of astronomy, and is the author of many works on the science. in which he imparts sound scientific knowledge in a simple and fascinating manner. His best known works of this class are: The Story of the Heavens, In Starry Realms, and In the High Heavens. He has also contributed the start of the start tributed to numerous magazines and reviews.

Ball, Thomas (1590-1659), a divine. He pub. Pastorum Propugnaculum,

1656, a religious treatise. Ball, Thomas (1819-1911), American sculptor, was b. in Charlestown. Massachusetts. In early life he was a distinguished basso, but soon gave up singing for painting and sculpture. In 1852 he made busts of Jenny Lind In 1852 he made busts of Jenny Lind and Daniel Webster Fro other chief works are the statutes of of shington in Boston Public Garler of New You and the group of 'Er's and the group of 'Er's and biography and the group of 'Er's and biography and Ten, 1918 and Ten, 1918 Ballachulish, a (sof Loch Levisch Argylshire, with a yr is 'f of about 1000. The staple industricts the quarrying of marble and slate, of which latter

of marble and slate, of which latter nearly 12,000 tons are produced yearly. The name is derived from the Gaelic Baile-na-coolish, the village on

the strait.

Ballad, a poetical composition narrative in matter and lyrical in form which generally recounts some specific legend, tale, or story, more or less complete. This type of composition was known to the Gks. and Roms., who utilised it for laudatory purposes and to keep green the memory of heroic deeds and noteworthy happen-Such ballads were almost inings. variably accompanied by symbolical dancing until the fashion of accom-panying them on the lyre or harp brought the custom into desuctude. Subsequent to the fall of the Roman empire we find the saga form in general use among bards, jongleurs, and min-strels, and there is little doubt that the ballad as we know it to-day was evolved from it. The saga, with its

interminable adventures, genealogies,

way to a less wearisome form which, besides affording its hearers a brief and striking narrative, would also charm them by its intimate humanity and its appeal to the memory. On the other hand, it is advanced with some show of reason that the saga may have grown from a collection of Bs. on any cognate subject, for example, the siege of Troy or the deeds of any mighty hero or house of heroes as the Nibelungs or Giukings. But it is in its lyrical form that we must here consider the B., which originally received its present name and shape in the Italy of the 12th century. It is, however, in Northern Europe rather than in the home of its modern origin that the B. has risen to highest distinction, and although the Bs. of the Ger. poets Uhland, Bürger, Goethe, and Schiller certainly touch a level of the highest excellence as regards both composition and romantic feeling, it is to our own country we must look for the B. in its most natural and therefore perfect form. Perhaps the most perfect specimens of the British B. are those to whom no authorship can be assigned, but the works of Scott,

Wordsworth, Tennyson, and Coleridge teem with examples which

combine the simplicity of the originals

of this type of story-song with the most consummate artistry. What is true of folk-lore may be also held true of folk-song. The plots utilised in the B. are few and of world-wide acceptance. As the epic, folk-tale, fairy-tale, and märchen are all universally wrought on the basis of a few venerable plots, so the material for the folk-song is almost equally scanty. These bases of the B. are among the romantic heritage of the sev. European peoples as much as is the story of the 'fatal children common to all mythologies, or the tale of the neglected daughter, the origin of so much matter of faery. We may even be enabled to trace mythologic processes in the B., but we will first examine its universality. We have, for example, the tale of the girl who follows her 'fause luve,' although she is well aware that he is about to take unto himself another 'may' for reasons of policy. She invariably disguises herself as a page, and is discovered to be a woman by the keensighted mother of her cavalier, who, touched by her faithfulness, inter-cedes for her, and she is happily wed to the recalcitrant gallant of her heart. Such is the subject-matter of Burd Ellen, one of the most touching and tender ever sung to the harps of the 'North Countree,' and such is the plot of the Bs. in French, Danish, and

other tengues. Again, we have the B.

and combats, would naturally give of the girl who, doubting her lover, is taken by him to a secret place, and is there told by him that she must die. By a trick she succeeds in taking his life instead. Such a plot is not confined to Bs. in our own tongue, but is almost universal. In the Bs. of Bürger and Goethe, modelled on older types, we notice that the shades of the de-parted act as if alive. They return to lie beside their lovers until cockcrow. and ride on swift steeds on which they often carry off the object of their earthly affections. So acts Clerk Saunders in the old Scottish B., and so do scores of ghostly wights in the Bs. of all lands. This conception is undoubtedly drawn from mythology. For example, we find in one of the Norwegian sagas the wife returning to the dead husband who is buried in the great mound on the moor by his dwelling. We thus find the same machinery employed throughout the Bs. of many lands, however different the local colouring may be. But there are other marks which betray the universality of B. idea beside sameness of plot. For example, we are never far away from the talking bird or the chorus of birds, the 'wee birdie' of the Scots Bs. which with warning accents bids the 'bonnie may 'beware of the 'fause Sir John. Again, we find that the generality of ballad-mongers have a decided par-tiality for gold and silver, and that the heroes and heroines of their songs are always mightily bedizened. They are liberally bedecked with the 'red goud,' and 'siller' is always plenteous. They have 'roses till their shoon,' and a great display of feathers. Their body-linen is invariably white as snow, and the cramosic and satins they wear are minutely specified with all the snobbery of a sycophantic bardhood. But there is wretchedness Hynd Horne and his like who come to claim their own are dressed as beggars, but the lordliness shines through their rags, and after receiving hospitality—they usually ask for a drink for the sake of their own memory to find how it will be received they stand forth in their native dignity and are duly remembered. In the refrains of such—in Hynd Horne it is 'The birk and the broom blooms bonny'-we find many allusions to plants. We know not the wherefore of this popularity of the heath plants, which permits their names to recurin B. refrain alternately with 'down-derrydown,' and the like, but some deeper significance probably lurks behind what would seem to be mere caprice. Ghastly crime is often, too, found in the B. motif. The Lammikin who the B. motif. The Lammikin who slaughters his may, the luckless childe' who is drowned or smothered

-invariably the possessor of 'gouden | locks'-recur among the old unhappy far-off things with the dastard groom who goes in his master's stead to his lady's bower, and is slain by his exasperated lord.

In the limits of such an article as this an extended review of B. literature is manifestly impossible, and a brief history of the B. form in the sev. European countries in which it has found favour must necessarily suffice.

The B. in Britain.—No balladforms of British origin of a greater antiquity than the 14th century may be said to have come down to us. Of the 13th century we have such speci-mens as Kyng Horn, Sir Tristrem, Haveloc, and Sir Gaywaine, which partake more of the nature of ex-tended romances than Bs. proper, and it may be further laid down that any specimens of a date anterior to this are mere Eng. translations of Fr. examples. In the 14th century the native Eng. composition began to find favour with the people to the detriment of the Fr. importations, and the era of its introduction appears to have been that of its highest ascendancy and its most abundant and felicitous production. In succeeding centuries to a much larger extent, and as they made no demand upon the memory and appealed to a public which had become familiar with reading, the B. form became gradually neglected and remained so until the period of its rescusitation by Bishop Percy, after a period of nearly 300 years. In his Reliques of English Poetry that celebrated litterateur and antiquarian unquestionably laid the foundation of that immense vogue of the romantic which dominated Eng. poetry for the next century, and which culminated in the wondrous era which produced Scott, Coleridge, Wordsworth, Southey, Byron, and Shelley. Scott, fired by a deep patriotism, set the torch which the great dry heap of romanticism and ignited the whole. Burns had rescued the songs of the people, the love songs, with their exquisite hometouches and tender sentiment, but had left the romantic untouched. the blaze ignited by Scott, Coleridge and the Lake brotherhood lit their torches, and while they and Hogg— with his marvellous Kilmenv—surpassed Scott so far as poetical ability was concerned, they did not suc-ceed in infusing into their work that true spirit of romanticism of which he appeared to have held the secret. Monk' Lewis, too, must not be forgotten in a review of the resusci-

tated B. His Tales of Terror and

bring out the weird in contradistinction to the romantic, and succeeded in bringing upon his head equal stricture with the 'stale romance' of Scott from Byron—afterwards only too fain to truckle to the prevailing taste, and to add the Mediterranean to the realms of won der conquered by his compeers.

The material whence Minstrelsy of the Scottish Border and its like was drawn. was in all probability for the most part 'made' in the 15th and 16th centuries. The Ballad of Sir Patrick Spens, for example, is regarded by some as a modern forgery, yet in its machinery and circumstances it bears the stamp of eld. It was probably written in the 16th century from a still older B. contemporary with the times of which it sings—the days succeeding the death of Alex-ander III. of Scotland, when the Maid of Norway was called to the throne. We may take it that, as Scott so shrewdly says, all the B. matter that came down to his time had been so vamped and re-vamped 'as to have lost completely its original form and phraseolo in such

Erceldour

buted to strange to find matter superior to that of the contemporary poets of the sev. eras through which these Bs. passed and survived handled by the mere verse-makers of the day, whose doggerel still clings like noxious weeds to the fairy-like and anct. phrase of the higher poesy round which it has clus-For it was not the Chaucers, the Dunbars, the Lindsays, or Spen-sers who fostered the B., but the Blind Harrys, the Hucheons, and the burral' or rustic minstrels who, voiding the courts, were content to string their rather tuncless harps in the halls of the 'backwoodsmen' of their day and at the junketings of the lesser gentry. Of the work of the nameless B. makers who produced such maryels as The Banks of Yarrow, Helen of Kirkconnel, and Binnorie are they not written on the heart of hearts of the people as the more elegant and studied phrase of poetry proper can never be, and have they not an abiding place there surer than law, custom, or the loyalty that keeps the crowns of kings?

The literature of the British B. has been examined by Furnivall, Ritson, Madden, Halliwell, and others, and especially by Professor Child, whose works will be found particularised in the bibliographical note.

The B. in Germany.—Although the volkslieder of the Ger. peoples is a form of considerable antiquity it Wonder, collected from all lands, probably attained its present type at Trislan of these poets were the lineal ancestors of the B. form, and we find their echoes in many a later effort. In the Heldenbuch, or great book of national heroes, and the Nibelungenlied, we find gathered together a number of Bs., the sequence of which assists to make up a completed whole. During the 15th century, amid a perfect riot of taste, a satiric type of B. arose, and was succeeded by the uproariously comic B. of which the wellknown Till Eulenspiegel is the form par excellence. During the Lutheran period the B. lingered in corners, and kept to its retreats during the sterile reign of Gallicism. But upon the great romantic renaissance which in Germany had as its protagonists Klopstock, Wieland, and perhaps Lessing, the B. returned to fostering influences, and in the hands of Bürger, Goethe, Schiller, and Uhland attained a marvellous perfection. The Bs. of modern Germany do not possess the almost childlike brightness of those of the old minneleider, but are marked by a gloomy grandeur and a variety of colour which rise into a lofty mysticism. The realistic movement of to-day may be said to have once more banished the B. from the arena of Ger. literature if not from more popular appreciation.

The B. in France.—The trouba-dours and trouveres of early French literature were the makers of the songs of love and chivalry, the lyrists of early France, and had no hand in the making of Bs. But this went on all the same contemporaneously with their more pretentious efforts. earliest B.—perhaps the only one of early origin that has survived—is that of Aucassin and Nicolete, and with the withering of the Langue d'Oc before the Langue d'Oil practically all the B. poetry of the former dialect must have vanished. We may be pretty sure that such 'epics' as the Chanson de Roland, Ogier le Danois, and the like, were merely a conglomeration of Bs. During what may be called the Arthurian period the B. appears to have been lost among the rich growth of a romance which, if it partook of the B. form, and was sung in the same manners. and was sung in the same manner as a B., was yet too extended in its efforts to justify its inclusion in the same nomenclature. In mediæval

the hands of those minnesingers who clustered around the courts of the landgraves and petty kings of the landgraves and petty kings of the Germany of the middle ages. At the court of Hermann, Landgrave of Thuringia (c.1180-c.1200), poetical effort reached a high standard, and such singers arose as Wolfram von Eschenbach and Gottfried von Strassburg. Such 'epics' as the Parsival and Tristan of these poets were the lineal ancestors of the B. form, and we find their echoes in many a later effort. Charles d'Orleans possessing some the hands of those minnesingers who | France, in short, the B. ran to a more Charles d'Orleans possessing some slight affinity with its genre. Villon, too, had B. affinities which, however, were counterbalanced by his richness of fancy and display of effort. The lyric splendour of Ronsard and his coadjutors cannot be said to possess any points of resemblance with the B. With the rise of the romantic school in 1830, the B. came back to its own, and in the works of Victor Hugo, Gautier, Sainte-Beuve, and Des-champs received liberal treatment and recognition.

The B. in Spain.—Spanish literature is rich in Bs. Perhaps the earliest type is that of the Poema del Cid, probably, like most early epics, composed of numerous Bs. joined into a compact whole. The transition of these 'Cid' Bs. to the prose chronicle of the same name was easy, as was the foundation of many romances on the prose 'Cid.' But the strife with the Moors inspired shoals of Bs., which in their furn might have been welded into another epic like the 'Cid' had the master-hand been present. These are mostly anonymous, and deal with the deeds of noble knights, the love of fair ladies, Spanish and Moorish, and other chiralism metric and the control of the contro chivalric matter. A good idea can be had of the quality of these Bs. by a perusal of Lockhart's Spanish Ballads. In Spain the B. has mostly to do with romance pure and simple. A peasant or bucolic muse arose quite separately, but although it approximates at times to the B. type it cannot altogether be classed with it. The Bs. of Spain are in general composed in a richer and more varied metre than those of other European countries, and have furnished many British poets with models for the composition of narrative verse.

In other countries of Europe the B. may be said to have followed a course similar to that indicated in the case of those countries dealt with. The foreign type of B. which bears most resemblance to the British is the Scandinavian (Dan., Norwegian, and Swedish), and there can be no doubt that sev. of our Bs. are direct Scandinavian importations, and the second country of the se dinavian importations, whilst the reverse can also be maintained. Norman-Fr. forms also display some

connection with ours, and the Bs. of | Wanganui, where he was first a shop-Brittany exhibit what might be described as a territorial connection with those of this country. The B. is by no means confined to Europe, and the various Asiatic countries possess forms which closely approximate to the European. S. America, too, has a B. literature of its own, and even the United States is by no means destitute of folk-songs cast in B. form.

Literature.—The chief authority on the subject of Bs. was the late Professor Child of Boston, who incorporated the fruit of years of labour in his English and Scottish Ballads, Boston, 1897-98. It contains a valu-able bibliography. There may also be consulted the Leabhar-na-Feinne of Campbell of Islay, London, 1872, for Gaelic Bs., Ancient Popular Poetry of Scotland, by Dr. David Laing, and the well-known collections of Ritson, Percy, and Scott.

Ballad, in music, a song which par-takes of the character of the folk-song, on the model of which it is founded. It is a favourite type of drawing-room melody, and is distinguished by a certain plaintiveness and romantic atmosphere. Many modern composers have distinguished themselves in this form of song, the most modern type of which, the 'art-song,' may be said to have in some measure evolved

from the ballad form.

Ballade, a form of verse consisting of three stanzas of eight or ten lines. concluding with an envoi of four or five lines. Each stanza must include three rhymes only, and the same three in the same order must run throughout the B. Each stanza, as well as the envoi, must have the same The envoi usually contains refrain. the dedication of the poem to some particular person, and often commenced with the title of the person to whom it was addressed, as 'prince' or 'sire.' It forms the climax of the The B. is usually classed by poem. prosodists among the forms utilised as vers de société. It must not be confounded with the ballad (q.v.). Modern Bs. of excellence have been written by W. E. Henley, Swinburne, Wilde, G. K. Chesterton, and others. It is essentially an antique form modernised, and was probably first perfected by Villon.

Ballagi, Moritz (1815-91), Hungarian philologist and Protestant theologian who studied at Paris and at Tubingen. He founded the journal Protestans egyhazi és iskolai lapok; but he is chiefly known as a philologist, his works consisting of Hungar-

keeper, then a journalist, and the founder of the Wanganui Herald. In the Maori War of 1867 he took an active part, and received a war-medal for his services. In 1875 he entered the House of Representatives; in 1878 became treasurer in Sir George Grey's ministry; resigned in 1879. He reentered parliament in 1884 as minister of lands and native affairs; became leader of the Liberal opposition in 1889 and prime minister in 1891. In politics he showed himself broad-minded, and his treatment of the Maoris was kindly and pacific. Ballanche, Pierre Simon

1847), a Fr. philosopher of the theocratic school, born at Lyons. Early in life he succeeded in joining the literary circle represented by Madame Recamier and Chateaubriand, and by dint of the freshness of his reasoning and the originality of his mind he shortly became well known. His prin. works are Palingenesie, divided into three parts: I. 'L'Orphee: 'II. La Formule: and III. 'La Ville des Ex-piations.' In these works he may be said to outline the history and philosophy of the world, past, present, and future. His later Vision d'Hebal contains the suppositious prophecies of a chief of a Scottish clan gifted with second sight, who sets down what he sees of the future history of the earth. As a member of the theocratic school B. naturally placed revelation before reason, and order above freedom.

Ballande, Hilarion (1820-1887), a Fr. actor and author. He played at the Odéon, Paris, and at the Comedy, and in 1869 founded Sunday literary matinees, which were held in the Gaite and in the Porte-Saint-Martin. He afterwards became a theatrical manager at Paris. His chief works are: L --- me, a poem. i; and rama.

Les Gro 7), Balla. native of Edinburgh. is de-He servedly famous for his Gaberlunzie's Wallet, a miscellany in which the various items are supposed to be drawn from the wallet of a wayfaring pedlar. He was also the author of The Miller of Deanhaugh, and of some of the liveliest of Scottish humorous songs, which he was in the habit of singing himself with great gusto. He completed under numerous disadvantages successful designs in a competition, the purpose of which was to provide stained glass windows for the House of Lords in 1844.

ian-Ger. dictionaries and a grammar. Ballantine, Serjeant William (1812-Ballance, John (1839-93), New Zea-S7), was born in London. He was land premier, was born in Glenavy, a famous cross-examining counsel of Antrim, Ireland. He emigrated to the older school. Educated at St.

bar in 1834, and being disposed to a not often associated with fiction of literary and theatrical life, soon ac- its class. Among his best known quired a number of friends connected His most with these professions. famous case was the celebrated one in which he defended the Tichborne claimant, but he successfully carried off several causes celebres, especially that of Franz Müller, who was tried for murder in 1864. He also acted for the Gaekwar of Baroda in 1875, and received perhaps the largest fee for so

doing on record. He died at Margate. Ballantrae, a small fishing vil. in S.W. Ayrshire. It has been brought into prominence of late years from the fact that R. L. Stevenson's novel The Master of Ballantrae deals to some extent with its topography. Formerly it was a reputed haunt of smugglers. It has now some vogue as a summer resort. The pop. numbers

about 500.

Ballantyne, James (1772-1833), an eminent editor and publisher, was b. at Kelso. As a young man he founded the Kelso Mail, and was the first to introduce an improved style of printing into Scotland. This attracted the notice of Sir Walter Scott, whose productions he printed, not hesitating to advise certain alterations in the sub-ject-matter of the manuscripts. In 1826 the company of which he was the head became involved in the bankruptcy of Messrs. Constable, their liabilities amounting to £102.000. Ballantyne distinguished himself in the eyes of his contemporaries as a judge of dramatic literature.

brother John was born His Kelso in 1774. He took an active interest in the business of his brother, and was widely known as a judge of art objects and works of antiquity. art objects and works of antiquity. He pub. separately a number of celebrated works, notably Scott's ed. of the British Novelists, and the works of Beaumont and Fletcher. He also ed. two periodicals, The Visionary and The Saleroom, the bulk of the matter in which was provided by Scott. He died at Melrosa Lune 16 He died at Melrose, June 16,

1821, aged forty-seven.

Ballantyne, James Robert (d. 1864), an orientalist; was superintendent of the government Sanskrit College at Benares from 1845; and librarian to the India Office, London, 1861. He made translations from the Sanskrit,

and wrote on oriental subjects.

Ballantyne, Robert Michael (182594), a well-known writer of boys' books, was b. at Edinburgh. His descriptions of the life of the trapper and hunter dwelling in wild outposts have rendered his tales of world-wide celebrity among the boys of two generations, and his almost journal-istic method of writing from personal

Paul's School, he was called to the experience has given his work a value its class. Among his best known books are: Ungava, The Coral Island, and Masterman Ready.

Ballantyne, Thomas (1806-71), a journalist who was the editor of the Journalist who was the editor of the Bolton Free Press, Manchester Guardian, Liverpool Journal, Mercury, Leader, and Old St. James's Chronicle. He also started the Statesman, was concerned in the corn law agitation, and ed. Selections from Carlyle and other Writers.

Ballarat, or Ballaarat, a city of Victoria, Australia, 96 m. W.N.W. of Melbourne, famous for its goldfields, which were discovered in 1851. and still yield a considerable revenue. But whereas the auriferous soil was found almost at the surface in the middle of last century, it has now to be sought at a depth of nearly 1000 ft., and quartz mining has become the staple industry of the dist. The com-munity is divided into B. E. and W., munity is divided into B. E. and W., the pop. of the two portions aggregating over 50,000. The city is modern in construction, and possesses many handsome buildings, besides factories, breweries, and mills which cater to local consumption. There is a railway line from Melbourne. In the old goldmining days B. was a typical miners' centre, and the pop. gathered there had something of a reputation for lawlessness. On Dec. 3, 1854, the method of licensing miners brought method of licensing miners brought about a serious riot which culminated in a veritable battle known as 'The Eureka Stockade,' where over 500 miners were attacked by 270 troops and police, who quickly captured the stockade, and about 30 miners were killed and some 60 wounded, whilst 125 prisoners were taken.

Ballard, the name of a famous family of Fr. printers of music who held the monopoly of their business for two centuries, handing it down from one generation to another until the Revolution. They were enabled to resist all innovations in musicprinting by their privilege, and were supported by the court. Robert B., the founder of the firm, received his privilege from Henry II. in 1552; his privilege from Henry III. in 1572; his privilege from Henry III. son Pierre had it confirmed by Henry III. and Henry IV.; his sons, Robert by Louis VIII., and Christophe by Louis XIV.; Jean-Baptiste-Christophe, son of Christophe, by Louis XIV.; his son Christophe-Jean-Engracia by Confirmed the Christophe C XIV.; his son Christophe-Jean-François by Louis XV.; and his son Pierre-Robert-Christophe by Louis XV. in 1763, after which monopolies were abolished by the Revolution.

Ballast, a term used to denote any weight placed in a ship's hold, with the object of sinking her deeper in the water, to secure proper stability and

safe sailing, when her cargo is too vessels sent out on a sealing expedilight. B. may consist of gravel, stone, tion to the South Seas, in 1838, by sand, iron, or water. Modern steamers carry tanks forward, aft and amid-ships, which can be filled with water to regulate the trim of the boat. The term is also applied to bags of sand and gravel used to steady a balloon. The word is used in engineering to denote the gravelly material laid as

packing between railway sleepers.

Ballater, a vil. in Aberdeenshire
on the R. Dee, 36 m. W.S.W. of
Aberdeen. From its proximity to the royal residence of Balmoral and the numerous beauty-spots of that part of Aberdeenshire, it is a favourite tourist centre. It is renowned for its chalybeate springs. Pop. about 1000.

Ball Bearings, an arrangement of hard steel balls surrounding a shaft or axle, intended to lessen friction by substituting rolling for sliding contact. Where a fixed bearing is used, the journal, or portion of the shaft within the bearing, slides over the surface of the encircling material; such movement not only causes the wearing out of the parts in contact, but necessitates work being done to overcome the friction. Both of these disadvantages may be minimised by efficient lubrication, that is, providing a thin film of oil between the journal and the bearing. Theoretically, the resulting friction is reduced to the reluctance of the fluid to move over either surface; but practically it is impossible to maintain an absolutely continuous film of oil. For light loads and moderate speeds it has long been the custom to place a row of balls between hardened surfaces, called ball-races, on the rotating piece and the stationary piece. The balls roll over these surfaces if properly ad-justed, and the only sliding friction which occurs is between ball and ball. and if the balls are of good shape and well lubricated, this is not consider-able. The qualities of an efficient B. are therefore: hardness in the balls and races, perfect sphericity and equality of diameter in all the balls and a good lubricating arrangement. The races may be plane or concave, the best results being obtained where the races are curved to a radius of two-thirds of the balls' diameter.

Ballenstedt, a tn. in the Duchy of Anhalt, Germany. It is situated near the Hartz Mts., and contains a palace of the dukes of Anhalt, famous for its library and paintings. The tomb of Albert the Bear, Margrave of Brandenburg (1100-1170), was recently discovered there. Pop. 1900.

ton to the South Seas, in 1838, by sev. merchants in conjunction with Messrs. Enderby of London. The group was first seen Feb. 9, 1839. It consists of five islands which, proceeding from E. to W., are called Sturge Is., Buckle Is., Borradaile Is., Young Is., and Row Is. Young Is. rises to a peak, called Peak Freeman, which is 12,000 ft. above the sea-level. Whales, penguins, seals, Cape pigeons, and small white birds are numerous. and the only animals seen. Fogs are frequent and thick; and navigation in the neighbourhood of the islands is dangerous in consequence of icebergs and drift-ice.

Ballerini, Peter (1698-c.1764), an It. theologian and author. His work entitled Il Metodo di san Agostino degli studj (1724) excited much interest, and was one of the causes of the quarrel with regard to probabilism. He was helped in his works by his brother Jerome (1702-c.1770).

Balleroy, Albert, Comte de (1828-73), Fr. artist, was W at Igé in Normandy and d. in Paris. His paint-ings consisted of hunting scenes and pictures of animals; they were carried out on a large scale, and his execution was vigorous and bold. The painting of 'Dogs Running' was exhibited in the Salon in 1853, and his 'Death of a Stag 'gained him a medal from the Salon in 1867.

Ballestros, Don Francisco (1770-

1832), Spanish general, was b. at Saragossa, and d. in Paris. He served in the campaigns against the Fr. in 1793 and 1795, became minister of war under Ferdinand VII. in 1815. and vice-president of the provisional ministry of 1820. After the Fr. in-vasion of 1823 he was condemned to death, but escaped to Paris, where he

died nine years later.

Ballet, The, in all probability originated in the semi-religious dance ceremonies common to nearly all primitive peoples, in which certain mythological personages are represented as enacting in dumb show various incidents in their careers. Thus we have well-defined Bs. in the the cance ceremonies of the snake societies of the Hopi and Moqui Indians of New Mexico and Arizona, the Güegüence B. of the Maya, and the theatric Bs. of the people of the South Sea Is. In anct. Greece the corybantic dances partook of the nature of Bs. In medieval Europe the B seems to have been more nearly dance ceremonies of snake the B. seems to have been more nearly evolved from the spectacle with which recently discovered there. Pop. 1900.

Balleny Isles, a group of volcanic islands in the Antarctic Ocean discovered by Mr. John Balleny and Mr.

H. Freeman, the commanders of two

in 16th-century France, where one, Baltagerini, master of the music to Baltagerini, master of the music to Catherine de Medici, developed the B. Comique, which later had rival forms in the B. Heroique and the B. Historique. Later, the mythological matter of Greece and Rome found favour as B. subjects in the eyes of the Grande Monarque, who did not disdain to take part in them and who disdain to take part in them, and who alluded to himself as 'The God of Dancing.' The B. form of modern times was first given its present shape by Noverre, who in the middle of the 18th century attempted to treat the highest themes in the light of this art-form. The B. in England has departed considerably from the more classic type still in vogue on the Continent, where the various centres of grand opera maintain schools for the training of persons of both sexes in the art. Especially famous are the schools connected with the operas of Paris, Brussels, Milan, Berlin, and St. Petersburg, the personnel of the last of which has recently aroused enthusiasm in the country by its per-formances. Differences in training exist between the Fr. and It. schools. but the latter is thought to adhere to the more rigidly classical forms and methods. In England the principal Theatre and Empire Theatre in London, which periodically produce Bs. which for splendour of equipment and scenery and novelty of idea are un-surpassed elsewhere. But these exhibitions are to a great extent lacking in the artistic atmosphere, discrimin-ation, and adherence to the best classic ideals which mark productions of a ideals which mark productions of a similar character abroad. The prin. exponents of the B. in England are Mdlle. Adela Genée, a lady of Danish extraction, and Mdlle. Lydia Kyasht, a Russian dancer, who appear in most of the productions at the prin. London houses. The Lanner family have for many years been the proposition in for many years been the premier in-dividual trainers of this form of danc-ing in England. The dancing of Mdlle. Paylova, the premiere danseuse of the Imperial Russian B., who recently visited this country, has been greatly admired as affording a completely novel and illuminating conception of the best continental methods. The Earl of Clancarty. Pop. (1901) 4904.
B. has naturally had some considerable effect upon music, and many of the most remarkable if not the in Lough Mask, 27 m. N. of Galway. greatest efforts of composers of note Pop. about 2200. have been directed towards it. The B. music of Schubert, Gounod, Delibes,

turies, we find the B. proper emerge wrote special music for the accompanying ballet.

Ball-flower, an ornament in Eng. Gothic architecture, resembling a ball placed within a circular flower, sometimes with three, sometimes with four It is characteristic of the Decorated style of the 14th century. It is supposed by some to be an imitation of a pomegranate, and by others of a hawk's bill.

Ballia, a tn. in the United Provs. of Agra and Oudh, N. India, 70 m. E.N.E. of Benares. Noted for the bathing fair, held in November. Pop.

about 16,400.

Ballin, Albert (b. 1857), a Ger. merchant, managing director of the Ger. steamship company, the Hamburg-America Line, which he joined in 1880, and which owes its success largely to his business enterprise.

Ballin, Claude (1615-78), a Fr. goldsmith, who occupied much of his time

in copying the works of Poussin, and who was employed by Louis XIV. on various designs. His nephew, Claude B. (c. 1660-1754) was also a noted goldsmith, his chief work being the coronation crown of Louis XV.

Ballina, a scaport in counties Mayo Ballina, a scaport in counties Mayo and Sligo, Ireland, on both sides of the R. Moy, 7m. from Killala Bay. The Sligo portion is properly called Ardnaree, a suburb of B. The R. Moy and Lough Conn are favourite resorts of anglers, as there is excellent salmon fishing. Coarse linens are manufactured and there is trade in all kinds. tured, and there is trade in all kinds of agricultural produce. The Fr. took possession of the town in 1798, but shortly afterwards were defeated at Killala. There is a Roman Catholic cathedral. Pop. (1901) 4505.

Ballinasloe, a small but prosperous mkt. tn. in Connaught, on the borders of counties Galway and Roscommon. It is situated on the Suck, a trib. of the Shannon, and is further connected with the Shannon by the Grand Canal, opened for commercial purposes in 1828. There is a celebrated wool fair held on July 13, and the cattle fair in October lasts four or five days. There are breweries and flour-mills, and tanning, hat-making, and carriage-building are among the other industries of the tn. Garbally Castle, in the neighbourhood, is the seat of the Earl of Clancarty. Pop. (1901) 4904. Ballinrobe, a small tn. in co. Mayo,

Balliol, see BALIOL.

Balliol College, a college of the Massonet and others is too widely Oxford University. Its foundation is known to require description. Per-iattributed to Sir John de Baliol of haps the first opera in which the Barnard Castle, Durham, and his B. was connected with the opera wife, Devorguilla, the parents of John proper was the *Orfeo* of Gluck, who Baliol, King of Scotland. John de

III. in his wars, but as an act of causes a deflection by which the penance for the injuries done to sanctuaries in his neighbourhood and to show his pious love of learning, he maintained sixteen poor scholars of Oxford between 1262 and 1268, On his death Lady Devorguilla completed his project of founding a residence for these scholars in 1232, and other benefactors added gifts of money, land, and church livings. Part of the library dates from 1430, but many new buildings have been added during the last century in the Gothic style. The college is endowed with many scholarships and exhibitions, and consists of a master, twelve fellows, about fifty scholars and exhibitioners, and the undergraduates, on an average, number over 200. B. boasts of many brilliant scholars, and has been the home of the champions of many intellectual and social move-ments. Wyclif was its master about 1360, when scholastic philosophy was cultivated within its walls. In the 15th century it harboured many Eng. humanists, including Humphrey, Duke of Gloucester (one of the founders of the Bodleian Library), and the Earl of Worcester. In the 19th century it contributed Cardinal Manning to the Oxford Movement. Among its distinguished graduates are Dr. Adam Smith, J. G. Lockhard, Robert Southey, Matthew Arnold, Swinburne, and Andrew Lang.

Ballista, an engine used by the Roms. for propelling heavy missiles in siege operations. It was constructed on the same principle as the catapult, the difference being that the catapult was used for propelling arrows in siege and field warfare, whilst the B. discharged heavy beams and stones for the battering down of buildings. The motive power in both types of engine is supplied by tightly twisted hemp, sinews of animals, or raw hide. Two such skeins are firmly fixed vertically in a heavy wooden framework: two stiff wooden arms are inserted in the skeins and are attached to a bow-string which is drawn back by a winch and locked by a trigger mechanism. The projectile is propelled through a window

in the vertical framework.

Ballistic Pendulum, an instrument invented by Benjamin Robins about 1740 to measure the velocities of war-like projectiles. It consists of a large wooden box coated with iron and filled with sand to the weight of from three to five tons. The pendulum is suspended from a strong horizontal beam, and is deflected by the impact of a projectile, the amount of deflection enabling the velocity of the missile to be calculated. If the gun is fastened to were,

Baliol was a keen supporter of Henry the pendulum and fired, the reaction muzzle velocity of the shot may be deduced.

Ballistics, the science of propelling projectiles from warlike engines. It includes the study of the conditions determining the flight of missiles through the air, such as air-density, shape and weight of projectile, effect of rifling, etc., and aims at constructing tables and other referenda to enable the gunner to estimate the range of shot fired under various conditions of elevation, etc. Another branch of the subject, called interior B., deals with the phenomena connected with the discharge of explosives within the gun, the temperature and pressure of the released gases, the movement of the shot along the barrel, the stress occasioned in the material of which the gun is composed, etc.

Ballistite, a smokeless explosive formed from guncotton. It is very. similar in composition to cordite and the various blasting gelatins, and has been utilised by the Italian gov. for

military purposes.

Ballium, see Bailey. Balloch, a vil., Dumbartonshire, Scotland, on Loch Lomond, on the N. British Railway; it is a terminus for the steamers on the loch.

Balloons. The science of aerostation is not so old as that of the sister science, aviation. But even in the case of this science we can trace it to some slight extent, at any rate, to the period of the dark ages and of medicevaltimes. The earliest attempts at artificial flight, however, were, until well into the 13th century, confined to various attempts to imitate the flight of birds, and the means usually employed was artificial wings. Although, however, the science of aviation is the older of the two, the younger science was the one which most speedily reached any degree of success. During the 13th century we get many attempts, either theoreti-cally or practically, to solve the pro-blem of acrostation. Many of these were fantastic in the extreme, many of them were impracticable, but the great point to be remembered, was that with the wave of new learning which at this time was about to spread over Europe, the minds of the new age had before them the problem presented by artificial flight, and sooner or later, in spite of failure and phantasy, the problem would be solved. The flying dove of Achytas, the experiments and theories of Roger Bacon and Albert of Saxony have been dealt with else-where where tastic i Laurus

yet, at the same time, made great strides in the right direction; the science had also attracted the atten-tion of Leonardo da Vinci (see AERO-NAUTICS). The experiments of Francis Lana had been carried out in the 17th century, and though unserviceable, they had been on the right lines. But it was in the next century, and even towards the end of that century, that the solution of the problem appeared to be in sight. The experiments of Cavendish and the writings of Priestley had been made during that century; they had attracted considerable attention, and among others who had been attracted by the results of Cavendish's experiments, two were two brothers, Joseph and Etienne Montgolfier, the sons of a paper merchant of Annonay, in France. That they did not fully solve the problem, nor yet understand the full significance of the experiments of Cavendish, is now fairly obvious, but the development of the B. and the research which has led to the practical perfection of the science of aerostation, date from the first experiments of these brothers with their fire Bs., or Montgofferes, as they came to be called later. In 1783 a bag made of linen was inflated over a fire of chopped straw, and rose to a considerable height. The brothers who siderable neighbor the bosonics were responsible for the experiment came to the conclusion that it was due to the smoke from the fire. They due to the smoke from the fire. They overlooked the important and true reason, but they commenced the art of successful B. flight, and were to all intents and purposes practically the inventors of the fire B., or, as has been already remarked, Montgolfières (see AERONAUTICS).

Aug. 1783, amidst the plaudits of an enthusiastic Parisian crowd. The B. rose to a considerable height, but fell some distance from Paris, and was torn to pieces by an infuriated and being one terrified peasant mob. The brothers balloonists. Montgolfier in the meantime continued their experiments, and attained a certain degree of success, being enabled to send up a B. that con-

which was at the time facing a part at tained a number of animals; they least of the thinking world. Francis Lana failed to solve the problem, throughout France, and received reyet, at the same time, made great strides in the right direction; the science had also attracted the attential was the construction of a B. that would carry passengers. An ascent in a captive B. was made by one Pilâtre de Rozier in Oct. 1783, and the same aeronaut made an ascent with the Marquis de Arlandes in a free B. during the same year. In the following year an ascent was made by a certain Madame Thiblé, who has therefore the honour of having been not only the first lady aeronaut, but also one of the pioneers of the movement. But the many experiments which were made with Montgolfières showed that the B. of that type was not entirely practicable nor very serviceable. The B. was often burnt during the inflating process, sometimes they caught fiating process, sometimes they caught fire in the air; more often, after a successful descent, the B. was destroyed owing to the body of the B. falling upon the pan which had contained the fire, and which was often, even after the descent, hot enough to set fire to the whole B. A great contained the second of the second o troversy waged for some considerable time as to which of the types of B., Montgolfières or Robertières (sometimes called Charlières), were the most serviceable. The type of B. used by the physicist Charles did differ essentially frommodern type, and ultimately it was in favour of this type that opinion veered. The hydrogen B. of Charles was fitted up with a net which covered about half the B. and was used to support the silk covering and also to distribute the pressure more evenly. From the wooden ring in which this silk netting ended, the car of the B. was attached by short ropes. From the experimental flights with Mont-golfières and Robertières much AERONAUTICS).

This success of the brothers Montgolfier roused intense enthusiasm in France, and their experiments attracted wide attention. The physicist Charles, however, who knew from his experiments with hydrogen the real many places. Reference has already been made to the flight of experiments with hydrogen the real Madame Thiblé, while in the same cause of the ascent of the B., was entrusted with the work of making a hydrogen B. Herealised the necessity for making the B. thoroughly air for a little over two hours. In the and coated with a rubber solution. The ascent was successfully made in difficulty and in spite of considerable Aug. 1783, amidst the plaudits of an hardships, the first cross-Channel hardships, the first cross-Channel flight was made by Blanchard and Jeffries. Blanchard had previously made a number of successful flights, being one of the first professional balloonists. This successful flight roused the envy of his fellow-balloonist, Pilatre de Rozier, who had desired to be the first to cross the Channel himself. In order to imitate the flight

special type (hydrogen over hot air), which, however, came to grief in 1785, a few moments after the ascent had been made. Both Rozier and the friend who accompanied him lost

their lives in the failure. The success of the B. was soon assured, and many ascents were made during the years following the first experiments of the Montgolfièrs, and of Charles Robert, and others. The of Charles, Robert, and others. The problem which now immediately presented itself to the minds of those interested in ballooning was the construction of a B. which should not be at the mercy of the elements, and which the passengers should be able to direct. The number of suggestions made were beyond all reason, and some of them were in the highest The foolish. first suggestions were for the employ-The former ment of oars and sails. would have been successful perhaps in moving a B. along at a very slow rate; the latter, save by means of employing also a guide rope which trailed on the ground, and which therefore caused the B. to go slower than the wind, would have been com-The early experipletely useless. ments for the production of a dirigible B. were failures; experiments were made with oars, with rudders, with sails, and by means of air-bags. It may be said that the first half of the 19th century was utterly devoid of any real success in the production of a B. which could be controlled. In 1852 we get the first dirigible whose motive power was a steam-engine which drove a propeller. This was built by Giffard. The weight of the dirigible, which was made with pointed ends, was roughly 11 tons, and experiments with it showed that it was useless for its purpose. his second machine, built in 1855, he was rather more successful, being able during one of his experiments to move slowly against the wind. Even move snowly against the wind. Even this machine showed that many improvements would have to be made before it was possible to produce a machine which would be capable of being fully controlled. A third B. was planned by Giffard on a very large scale, but his third attempt was payer nut, into execution and was never put into execution, and although all the plans for it were made in detail, the inventor died before the construction of the machine was started. The experiments commenced by Giffard were continued in other countries, especially under the direction of De Lôme, and almost at the same time by Haenlein, who used his fearlessness and by his repeated for the first time a gas engine. This machine met with a certain amount of success, but the type of engine

of Blanchard he constructed a B. of was too heavy, and the results of the experiments were therefore not as great as had been hoped for. The machine was an advance on the type of Giffard and Lupuy or Lome, but on the whole was not a great success. on the whole was not a great success. The first real success of the dirigible type of B. was the successful flight of the airship 'La France,' under the direction of two Fr. officers, Renard and Krebs. In Aug. 1884 they were able to prove conclusively that a dirigible airship could be produced, and could be manœuvred in the face of the wind, providing that the wind was not blowing at too great a velocity. Their first successful flight lasted for about twenty-three minutes. and they covered considerably more than 5 m. These experiments, coming at the end of a long series of failures, gave renewed hope to the aeronauts, who had by this time almost concluded that the solution of dirigible flight was beyond the hopes of practical experiments. The successful flight of 'La France' caused a renewal of experiments in most of the countries of Europe. In Germany a new dirigible was made by Dr. Wolfert, and its first ascent in 1897 ended in disaster, In 1898, however, we can begin to note the first experiments of Count Zeppelin.

Since 1898 Count Zeppelin has constructed four dirigible B., all of which have met with a considerable amount of success. The first was ex-perimented with in 1900; it made three flights, and the machine was finally abandoned. In 1906 a second attempt was made by the Count, the results, however, in the second case, not meeting with any very great success. The machine was landed safely, but was damaged by the wind during the night so considerably that it had to be broken up. The Zeppelin III. was built soon after the disaster to the second, and was a very great success. It succeeded in carrying eleven passengers for a distance of about 69 m. In the following year (1908) appeared Zeppelin IV., which made a number of successful voyages, the crowr iournev . the Mayence airship was unfortunately destroyed by fire. In June 1909 he also succeeded in travelling over 900 m. in

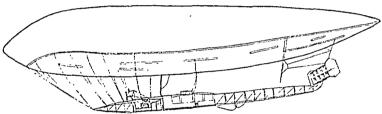
in Berlin was greeted with enthusiasm by the populace. Another great name in the annals of the dirigible B. is that of Santos Dumont, a young Brazilian, who, by

thirty eight hours, and on his arrival

rirships, and

of France for aerial flight, and did much to attract the attention of scientists to the problem of successful The Lebaudy airship was a type that also proved successful, and was practically adopted as the type by the Fr. military authorities. The Lebaudy dirigible was the first example of the semi-rigid type which has since proved itself so successful. The first Lebaudy machine, after a series of successful trips, was wrecked in Nov. 1904; but so successful had the type of machine been that immediately the brothers Lebaudy built

the results of these flights and the to direct the fire of his own artillery. remedying of the failures went far to This advantage seems to have first solve the question of aerial flight. Struck the Fr., and during the early Above all he roused the enthusiasm period of the revolutionary wars, we period of the revolutionary wars, we find that two B. corps were organised by the Fr. Their success was not very great, but it was of some value during the battle of Fleurus, 1794, and annoyed the enemy to such an extent that, at least by the Austrians, balloonists were treated in the same manner as spies. But there were tremendous difficulties in the way of the B. corps, and in 1798, on his return from Egypt, Napoleon put an end to the existence of the French B. corps. During the 19th century we find that a great many attempts were made to revive the use of the B. as a necessary mediately the brothers Lebaudy built revive the use of the B. as a necessary another on a large scale, which ultimately was adopted as the parent the Franco-Prussian War (1870-1), type of the dirigibles of the Fr. army, we cannot say with any degree of The Fr. airship, the 'Patrie,' was built confidence that the experiments were after this model, and had a long and justified by their results. During the successful career before coming to an untimely end in the Atlantic; but the lattempt was made to foster the use of



Fr. nation were not disheartened by military Bs. in Russia, but the experithis disaster, and a number of other ment was too costly, and was given upairships of this type have since been During the many wars and revolubuit. In Great Britain, the first airtions of that century attempts were ship was of the non-rigid type, and made to revive the use of the military. 1912 these vessels proved that they were capable of being put to good use. The three prin. types of airship have now been dealt with. The rigid, such. of the Lebaudy machine, and also the type principally adopted in Great Britain after the ill success of her first ship.

Military ballooning.—Immediately after the first success of the Montgolfière and the Robertière type of B., it began to be recognised that the B. could be put to reasonable use during

was almost from the beginning antiguated and useless, but since then of them; during the Civil War in
other airships of the semi-rigid type America use was made of them; and
have been built, and during the even in the wars of the republics of
manœuvres in East Anglia during S. America Bs. were used at least for America use was made of them; and even in the wars of the republics of S. America Bs. were used at least for reconnoitring purposes. In most of the armies of the Great Powers experiments were made with Bs., and in France, Napoleon III. tried to revive for example, as those built by Count the B. corps, which had been done Zeppelin; the non-rigid, the type away with by his great predecessor. which was first adopted in Great In Great Britain many military ex-Britain; and the semi-rigid, the type periments were tried, but no attempt was made actually to form a B. corps until after 1870. Both the Fr. and the Ger. military authorities tried to utilise Bs. during the Franco-Prussian War. The Ger. attempts were almost completely a failure; the Fr. attempts to use the Bs. for military purposes exclusively also to a large extent failed. So little information was warfare. From the vantage point of gained that the military authorities the air the balloonist would be able to ultimately sold their B. to the postal learn the position of the enemy, and dept. On the other hand, passengers

besieged tn. of Paris in comparative safety by means of a B., and alto-gether, out of the sixty-six Bs. that left Paris during the period of the siege, at least fifty-nine of them arrived safely at their destination. The B. work of the siege of Paris was both interesting and useful, and served the double purpose of helping the Fr. to take communications out of the besieged city and also gave useful experience of the practical value of the B. during a period of war. After the war of 1870-1, B. corps were formed in practically every army, and the experience gained during that war went far in helping in the or-ganisation of the B. corps throughout the world. One natural result of the war was the invention of a gun which could be used for firing at Bs., and this in turn led to additional experience later in times of peace as to the exact manner in which Bs. could best be disabled in time of war, and to what extent rifle and cannon fire would injure them. Further, the advantage of a B. service, even if useless as far as actual military tactics were concerned, was shown in the organisa-tion of resistance to the Germans by Gambetta, after his escape from Paris by means of a B. Immediately after the close of the Franco-Prussian War use was made of the experience gained during that war to put B. corps upon a firm and satisfactory basis. The Fr. immediately commenced the work of organising B. corps which would be of value during actual warfare: they realised that in any future war they must be prepared for active opera-tions by means of Bs., and they organised the B. corps so that to each army corps could be attached a B. corps which would be self-contained To each corps were and self-reliant. attached wagons for the carrying of tools and appliances and for carrying also the actual B., while further gas waggons were attached which would give the corps a constant supply. In Germany the first B. corps was formed in 1884, and has since that time continued to be supplemented and strengthened, so that at the present day the B. corps of Germany are of very considerable value, and are of very considerable value, and ranks amongst the finest in Europe. In Great Britain a B. corps was first founded in 1879, and during many of the wars which England fought after that period the B. corps did valuable work. Mention may here be made especially of their work during the S. African War, where, although during the siege of Ladysmith the B. corps, wing to the lack of supplies, could African War, where, although during in the reports of the British Associathe siege of Ladysmith the B. corps, tion. The chief questions which he owing to the lack of supplies, could sought by experiment to determine not do any work, afterwards was able were: the temp, of the atmosphere, to render great and valuable services the amount of moisture contained in

and letters were conveyed out of the 1 to the troops in the field, and especially to the troops in the neid, and especially during the events which led to the surrender of Cronje. America also used B. in 1898, during her war with Spain, and B. corps have also been formed in Austria and Russia. The types of B. used may be divided into two classes—the free B., the captive B. and in this category although net. strictly a B.. we may add the kite. Of these the captive B. is probably of the greatest actual service, since by use of it observations may be made of the movements of the enemy, and above all the fire of the guns of the artillery may be actually directed from such a B. The free B. would be of perhaps greater service if it were possible to place the same reliance in it as in the captive B. The free B. has the advantage of being able to follow the movements of an army which is moving from place to place, and is also of great value in reconnoitring the position of the enemy, and of gaining information of the fortifications and strength of the towns of the enemy. The man-lifting kite has recently been the subject of many experiments, and from these experiments promises, with the captive B.. to be of the greatest advantage to the army, especially from the point of observation and direction of artillery observation and direction of arthery fire. The man-lifting kite can also be used with advantage during naval operations, and promises to be of the utmost value, since it is more easily carried by warships than the captive B. For the use of dirigibles in warfare, see Aeronautics.

The balloon and science.-The use of the B, as a means of examining the phenomena of the atmosphere was first made soon after the earliest successful ascents had been made by the Montgolfiers and by Charles. Charles, as a matter of fact, made scientific observations during his first voyages, but the first ascent made wholly in the interests of science was made by Jeffries in 1784. From his observations the B. rose to a height of 9000 ft., and the temp., which was about 50° in London, fell to 20° F. During the first half of the 19th century many ascents were made, but until the experiments of Glaisher begin we may conclude that the results ob-tained were not of outstanding im-portance. Glaisher, however, made altogether some twenty-eight ascents for scientific purposes, and his results were the best which were obtained for some very considerable time. The results of his experiments may be found

tion of the breezes; later especially, special instruments were invented in order that the information gathered during these scientific ascents should be accurate, and much valuable information was gained by the use of these instruments during numerous ascents. The work has been confined chiefly to meteorology, but much valuable astronomical work has been done also. The phenomena attendant on the eclipse of the sun have been observed from a B., and interesting information concerning shooting stars has been gathered also. The experiments commenced by Glaisher have been continued by distinguished scientists in almost every country in the world, and the in-formation which has been gathered has been of vital importance to the science of meteorology. The B. has also been used for attempts to reach the North Pole, the most famous of which was the unfortunate attempt of Andrée: Andrée's expedition never again being heard of. The longest B. voyage proposed was that of Wise in 1873, who proposed to cross the Atlantic Ocean in a B. specially constructed for him by the New York Daily Graphic. The voyage was never commenced, since the B. was rendered useless while being filled. Since then Wellman attempted the same feat. Starting on Oct. 15, 1910, in a specially constructed dirigible, he abandoned the attempt in mid-ocean after flying and drifting 850 m. Two voyages of over 1000 m. are on record, the first being that of Wise in 1859, from St. Louis to Henderson, New York, which covered a distance are on of 1120 m.; the other the voyage of the Count Henry de la Vaulx, who, starting from Paris, reached the town of Korosticheff in Russia, thus covering a distance of nearly 1200 miles.

Ballot (It. ballotta, diminutive of balla, a ball), originally, the little ball used for secret voting; hence 'voting by ballot' is a term applied to the practice of secret voting. Secret voting was practised in Greece and Rome by means of balls, marked stones, shells, and tickets, in cases of ostracism, at criminal trials, and in Rome at the election of candidates to a public office. Secret voting at elections of members of parliament was

it at the higher levels, the determination of the old point—the suitability of the higher levels for human habitation (this had reference principally to the mountains of India), the determination of the electrical properties of the atmosphere, the properties of the atmosphere, the properties of the oxygen of the atmosphere, the collection of samples of the air at various levels, the constitution and the height of the clouds, the velocity and direction of the breezes; later especially special instruments were invented in order that the information gathered during these scientific ascents should be accurate, and much valuable in members is common in most clubs.

Ballot, Buys, see BUYS - BALLOT,

CHRISTOPH.

Ballot, Charles (1818-85), a Fr. lawyer and publicist. He founded the Revue pratique du droit français, contributed to Le Siècle, and ed. Le Droit. He was also appointed solicitor-

general, of the court of Paris, and vice-president of the council of state. Ballot, Marie Paul Victor (1855), a Fr. colonial administrator. He was appointed commander - in - chief of Senegal, 1878; of the settlements around the Gulf of Benin, 1887; and organised the French explorations of the interior of Africa as far as the Niger.

Ballota, a genus of Labiatæ common to Europe. B. nigra is the feetid horehound, a British weed. The ordinary horehound belongs to the same order but genus Marrubium.

Ballu, Albert (1849), a Fr. architect, son of Théodore Ballu. He was appointed diocesan architect of Algers, 1885, and received a gold medal from the exhibition of 1889. Amongst the works which he has undertaken are: the court of justice of Charleroi, the tower of the cathedral of Aix, and the restoration of the churches of Esnandes (Charente-Inférieure), of Notre Dame de Lambelle (Côtesdu-Nord), and of Saint Florent in Corsica.

Bally, Victor (1775-1866), a Fr. physician. He took part in the expedition of Saint-Domingue, joined sev. army medical corps, and did much work when the yellow fever was raging at Barcelona, 1821. He was the author of several medical treatises.

Ballycastle, a small seaport in the N. of co. Antrim, Ireland, opposite Rathlin Is. There is a good pier and harbour. The castle was built by the Earl of Antrim in the reign of James I. Pop. (1901) 1481.

Ballyclare, a market tn. Ireland, co. Antrim, 9 m. E.N.E. of Antrim, on the Belfast and Northern Counties Railway. It is chiefly noted for its paper mills. Pop. about 1600.

Bally Island, or Little Java, see BALL. Ballymena, a tn. in co. Antrim, Ireland, on the Braid. It is an im- its genus, and is found in Europe; it portant railway centre, on the Belfast and Northern Counties Railway. The linen manufs. were introduced c. 1733, and are an important feature of the The agric. and iron-mining industries are also in a flourishing thouseness are also in a monthly condition. The town was taken by the insurgents in 1798, but was not held for long. Pop. (1901) 10,886.

Ballymoney, a tn. in co. Antrim.

Ireland. Brewing, distilling, and tanning are carried on, and linen, soap, candles, and tobacco are manu-

factured. Pop. (1901) 2952.

Ballymote, a tn. in the co. of Sligo, Ireland. It flourishes as a mrkt. tn., and has considerable agric. trade besides carriage works. In 1300 Richard de Burgh built a castle here whose remains are still standing, and it formed the site of disturbances in 1641 and 1642. There are also the ruins of a Franciscan foundation which are approximated to the 13th century. The fame of its learning spread for some considerable distance at that time. The erudite monks left a literary monument in the form of the B. book, a manuscript now in the possession of the Royal Irish Academy. It is a miscellaneous collection of prose and verse, written in Gaelic, and compiled about 1391. There are some translations of Latin romances, and the rest is of historical and genealogical interest. The book was once in the possession of the O'Connel family, who bought it for 140 cows. A facsimile reprint was issued in 1887, edited by Professor

Atkinson. Pop. (1901) 997.

Ballynahinch, a tn. in the co. of
Down, Ireland. It has a large market trade, and is situated 12 m. to the S. of Antrim. Its pop. is approximately

1600.

Ballyshannon, a scaport of Donegal co., Ireland, at the mouth of the Erne. Salmon fishing is extensively carried on at a waterfall in the Erne, where the leaping of the salmon assists their capture. Owing to a bar the harbour is only available for small craft. Remains exist of a castle of the O'Donnells where the English in 1597 were defeated. Pop. (1901) 2359.

Balm, or Melissa officinalis, is a

species of Labiatæ found in Europe and Western Asia, and is frequently cultivated in English and American gardens. It has an upright stem, opposite and alternate leaves which are toothed and ovate, and the ordinary nettle-shaped flowers of the order, of a faint yellow or a white The leaves are used in colour. medicine for their tonic and stimulant properties, but they are not of very great value. Bastard B., or Melittis Melissophyllum, is a single species of On the accession of Mary (1543) B.

also belongs to the Labiatre.

Balm of Gilead, or Balsam, a species of Burseraceæ, native to tropical Asia and Africa. It is used extensively in oriental countries for its sweet scent and medicinal properties. It is referred to in the O.T. and by many old writers who affirm its power to heal all diseases.

Balmaceda, José Manuel (1838-91), a politician, w

He was made of Chili, and a

Liberal party. He did much work for the development of public instruction and for the army and navy. He also promoted the construction of railways.

Balmain, a shipbuilding suburb of Sydney, New S. Wales; pop. about

30,000.

Balme, Col de, a mt. pass situated between Mts. Blanc and Dent du Midi. It is traversed by the road from Martigny to Chamonix. Its his point is 7200 ft. above sea-level. Its highest

Balmerino, Barons, see ELPHIN-STONE.

Balmerino, James Elphinstone, first Baron (1553-1612), Scottish politician. Under James VI. he was appointed judge and royal secretary. He was Judge and royal secretary. He was in 1604. He was made Lord B. in 1604. He was implicated in a letter addressed to the pope, which aroused dignitary's wrath. After a short in-

carceration he died. Balmes, or Balmez, Jaime Lucio (1810-48), Spanish publicist and philosophical writer, was b. at Vich in Catalonia. He proved himself an ardent and eloquent defender of the monarchical system and founded a political paper of a clerical and monarchical character in Madrid in 1844, calling it El Pensamiento de la Nacion. His Filosofia fundamental (1848) has

been translated into English. Balmoral Castle, a residence of the British sovereign in Aberdeenshire, Scotland. It is used in a private capacity. It is situated on the r. b. of the Dee, which at this point is crossed by a suspension bridge. The Prince Consort acquired it from Sir Robert Gordon and gave it to Queen Victoria together with the estate attached. It is built in granite and has an eastern tower 100 ft. high, which commands a magnificent view.

Balnaves, Henry (d. 1579), of Hal-hill, a Scottish reformer, was born of poor parents in Kirkcaldy, Fife, and studied at St. Andrews University and at a free school at Cologne. He acted for some time as a procurator in the courts of St. Andrews and then removed to Edinburgh, where in 1538 James V. made him a lord of session.

was promoted to the office of secretary, sunstroke. The shower-bath is a douche of state, and was instrumental in getting the Holy Scriptures translated into the Scots vulgar tongue. He was confined for six months in the castle at Blackness for his aggressive Protestantism. In 1546 he joined the murderers of Cardinal Beaton in the castle of St. Andrews. In the following year he was captured by the Fr. and was thrust into the capital of Rouen as a prisoner of war. In 1554, when the dowager queen, Mary of Guise, became regent of Scotland, B. was released and his forfeiture rescinded. On his return to Scotland he took an active part on the side of the Lords of the Congregation, and in 1563 was appointed a lord of session and was chosen as one of the commissioners to revise the *Book of Discipline*. During his imprisonment he wrote a treatise on justification, which was pub., with a preface by Knox, under the title of A Confession of Failt.

See M'Crie's Life of John Knox (new ed. 1889).

Balneology and Balneotherapeutics. Balneology is the science of baths and their effects upon the system. Baths act more by modifying temp, than by skin absorption. The cold bath (45°-66° F.) causes a contraction of the vessels of the skin and consequently drives the blood into the internal organs, where the resulting dilatation causes an exhilarating after-effect if the immersion be of short duration. The cold bath is thus valuable as a tonic. The tepid bath (85°-90°) is of relies in fewer threath actual beat value in fevers through actual heat Between 93° and 95° abstraction. baths are at the point of thermal in-difference; they do not change the movement of the blood-stream and have a sedative effect on the nervous system. Baths of higher temps. promote circulation in the surface blood-vessels, and the hot bath (103°-108°) operates as a powerful stimulant, and is used in dropsies, catarrh, kidney diseases, etc., to increase the absorption of morbid products. If the immersion be prolonged there may be weakness of the heart with the possiweakness of the heart with the possibility of fainting. The Turkish bath is a hot-air bath where the patient passes through compartments ranging in temp. from 100° to 200° F. It is used for promoting perspiration, and in cases of catarrh, neuralgia, and rheumatism. It is deleterious in fatty degeneration of the heart. The Ruster health is a recommendation with the second control of the second sian bath is a vapour-bath in which! steam is generated by throwing water on heated mineral or metallic surfaces; it is of value in rheumatism. The douche is a bath where water is forced by considerable pressure upon

where water is forced against the body from a nozzle with numerous per-

forations; it is used as a general tonic. There are also special forms of bath where the body is immersed in peat. mud, slime, pine-leaves, herbs, brine, sand, bran, malt, tan, glue, milk, soap, acid, mustard, etc. Air-baths are dealt with in Aerotherapeutics, and electric baths in Electrotheraneutics.

Balneotherapeutics is a term generally restricted in application to treatment at spas, where patients systematically drink and bathe in water naturally mineralised, or artificially modified at the places where the springs emerge from the earth. The beneficial results of spa treatment in many types of disease are undeniable, but there is some difficulty in apportioning the credit among the various curative factors in such treatment. The usually favourable climate, the submission of the patient to a régime that would probably be relaxed at home, the presence of physicians with special experience, the provision of specially appropriate appliances and organisation, and the combination of regular exercise in a good atmosphere with systematic medical treatment, all contribute in varying measures to the well-being of the patient. As to the waters themselves, it is undoubtedly true that many of them lose their properties when bottled and exported, and cannot be artificially prepared so as to produce the same conditions, or contain such subtle ingredients that their composition is not wholly known. Gautier has suggested that the warm mineral springs consist of water which is formed by the combination of hydrogen distilled from granitic rocks at great depths with oxygen derived from metallic oxides also found there, thus producing what he calls nascent or virgin water. Many waters also contain radium emanation, which has a therapeutic value in certain morbid conditions. The bubbles of carbonic acid gas, which have such an exhilarating effect on the skin, cannot be exactly reproduced in baths artificially charged with carbonic acid.

Spa treatment is suitable in the

sub-acute or chronic stage of disease. where the patient has a good supply of reserve force. Acute cases, or those tending to a fatal issue at an early period, should not be recommended; serious visceral disease, advanced arterio-sclerosis, serious mental or nervous depression are also unsuitable, whilst children and old people should have recourse to climatic influences only. In any case, the patient the surface of the body; it is used in fluences only. In any case, the patient insomnia and the come of alcohol or should be reconciled to separation tanglements which are liable

occasion worry.

The chief object of spa treatment is to promote excretion by way of the kidneys, bowels, and skin. For elimination by the kidneys the alkaline waters at Vichy, Neuenahr, Vittel, Contrexe-ville, Wildungen, Evian, and Aix-les-Bains are suitable. For elimination by the bowels waters containing sodium sulphate are useful, as at Marienbad, Karlsbad, Brides-les-Bains, and Cheltenham. Arthritic ailments are best suited by Aix-les-Bains, Bath, Droit-wich, Harrogate, and Buxton, but it must be remembered that gout, rheumatism, and rheumatoid arthritis are to be considered in connection with the associated constitutional dition before making a choice of a spa. Nervous diseases are specially provided for at Oeynhausen, Schlangenbad, and Church Stretton. Colitis is a leading speciality at Plombières and Châtel-Guyon. Primary anemias are treated at Schwalbach, Spa, and St. Moritz, whilst for secondary anemias Royat, La Bourboule, Uriage, Harrogate, and Llandrindod are suitable. Marienbad is specially recommended for the systematic treatment of obesity. Diabetic patients will secure experienced treatment at Karlsbad, Brides, Neuenahr, Vichy, Vittel, Royat, Buxton, Gastein, Evian, St. Moritz, and other spas. Phlebites and varicose veins are specialised in at Bagnoles - de - l'Orne. Luchon and Schinznach have a good reputation for the cure of skin diseases, and Cauteretz attracts sufferers from throat maladies.

Balrampur, a tn. in British India near the Tapti. Its rajah was loyal during the Mutiny. Litigation on his death threw the state into chancery, the revenue of which is £16,000.

Pop. (1901) 16,723

Balsam (Gk. βάλσαμος, balsamtree), a name given in medicine to a great many resins and oils taken from plants of many different kinds, but given in particular to B. of Peru and These two varieties come of Tolu. from leguminous plants, the first species being known as Myroxylon peruiferum, the second as M. toluiferum. Liquidamber, a balsamic product of Liquidamber styraciflua, is sometimes called white B. of Peru. B. of Copaiba is also obtained from many varieties of the genus Copai-fera. Bs. have a pleasant fragrance which renders them of service in making confectionery and perfumes; they also have tonic and stimulant properties.

Geraniaceæ which is native to India ercz, July, 1872. and Japan. The plants are generally Baltadji, Mohammed (d.

from all business and domestic en-therbaceous annuals with white or red flowers. I. balsaming, found in the E. Indies, is a beautiful plant cultivated in gardens and conservatories in England ; I. nolime-tangere, yellow B. or touch - me - not, is found in Europe, and often in Britain. If the ripe capsule of the flower be touched it immediately dehisces and scatters its seed.

Balsamina, another name of the genus Impatiens which belongs to the order Balsaminaceæ. The former is a name given by Tournefort, the latter by Linnæus.

Balsaminaceæ is an order of Dicotyledons which contains only two genera, of which Impatiens is the chief. It has numerous species of herbs which are cosmopolitan and are remarkable for the elastic force with which the valves of the capsular fruit contract and eject the seeds. flowers are regular, zygomorphic, have 5 petaloid sepals, 5 petals, 5 stamens, and 5 carpels which are united, superior, and contain numerous ovules.

Balsamo, Giuseppe, see CAGLIOSTRO. Balsamodendron, or Commiphora. is a genus of Burseraceæ which grow in tropical Asia and Africa. C.) Myrrha yields myrrh. exudes as a resin from the bark and becomes hard by exposure to the air: it has a bitter taste and peculiar odour, and is used in the manuf. of incense and some medicines. B. (or C.) opobalsamum produces the expensive Balm of Gilead, an oleo-resin which is highly prized in the East.

Balsham, Hugh de (d. 1286), succeeded William de Kilkenny as Bishop of Ely, 1256. In 1280 he obtained a charter to introduce studious scholars ' into his hospital of St. John, Cambridge, in place of the secular brethren. In 1284 he founded Peterhouse, Cambridge, for

his own pupils.

Balta, a tn. in the Russian gov. of Pondolia. It is situated between the Dniester and the Bug. It has an extensive trade in cattle, horses, and grain. Two fairs are held there annually. Among its industries are tallow-melting, tile. soap-boiling. making, and brewing. A large part of the pop. are Jews; pop. 23,393.

Balta, Jose (assassinated 1872). Peruvian statesman. Hе helped General Canseco to overthrow Pezet, and became one of Canseco's ministers, 1865. Prado defeated Canseco, ters, 1865. Prado defeated Canseco, but was himself ultimately over-thrown by B., who then became president of Peru, 1867-71. He ruled well, and favoured public works, but Balsam, or Impatiens, is a genus of was assassinated by Marcelino Guti-

81 Turkish statesman, became grand vizier under Ahmed III. In 1710 he gained a decisive victory over the Russians, but was induced by the Empress Catherine to sign the treaty of Falezi renouncing his advantages in the battle, which greatly incensed

Charles XII. of Sweden who had aided him. His death took place at

Lemnos. Baltard, Louis Pierre (1764-1846), a Fr. architect, engraver, painter, and He at first became an engraver, then went to Italy where he served as an architect, but owing to the Revolution he returned to Paris and entered the army. He afterwards became professor of architecwards became professor of architecture at the polytechnic, and did much work as an architect in Paris, and built the chapels of Sainte-Pélagie and Saint-Lazare, and the court of justice at Lyons. His engravings

Baltard, Victor (1805-74), a French architect, son of Louis Pierre. As director of architectural works at Paris and La Seine he built sev. public buildings, and he also restored the churches of St. Germain des Prés, St. Eustache, St. Severin, and St. Etienne du Mont. Of his publications. illustrated with his own designs, the chief are: Monographie de la villa Médicis à Rome, 1847; Monographie des Halles centrales; and Les Peintures et arab-esques de l'ancienne galerie de Diane à Fontainebleau.

Baltazarini, or Baltagerini (fl. 16th century), It. musician, first violinist of his time and founder of the modern ballet, was first valet-de-chambre to Catherine de Medici. He introduced It. dances to Paris, and by his royal mistress was called Beaujoyeulx.

Balthazar, or Balthasar, the Gk. form of the name Belshazzar (q.v.).

Baltic, or Baltiiski Port, is a scaport of Russia on the Gulf of Finland, and marks the end of the Baltic R.; pop. 900.

Baltic, Battle of the, was a great sea-fight which took place off Copenhagen on April 2, 1801. In this battle Sir Hyde Parker and Nelson destroyed

the Danish fleet.

Baltic Provinces, region lying on the Gulf of Finland and the Baltic Sea, including the three Russian governments of Courland, Livonia, and Esthonia. The term is generally used to include also Petersburg and Finland. The bulk of the pop. consists of Lettish and Esthonian races, the latter being a branch of the Finns, while there is a considerable admixture of Germans, especially in the large towns and among the higher classes. The number of Russians is still fairly small. Excepting Courmost i land, which was a dependency of Oder,

became grand Poland, all the B. P. once belonged III. In 1710 he to Sweden. The foundation of St. Petersburg in 1703 first gave Russia a secure footing on the Baltic, and the Swedish provinces were ceded to her soon after. Courland did not come into her possession until 1795. Strenuous attempts have been made to Russianise the B. P., and to convert their inhabitants to the Russian Church, but have not been very successful. Commerce in the Baltic

> is good. Baltic Sea, a sea between 54° and 66° N. lat. and 9° and 30° E. long. 66° N. lat. and 9° and 30° E. long. It is surrounded by the dominions of Sweden, Russia, Germany, and Denmark. It is 960 m. long and 400 m. broad. It has 5000 m. of coast-line. A channel connects it to the North Sea. The western portion of this channel is called the Skaggerack. while the remainder is called the Kattegat. Islands fill the southern extremity of the Kattegat, and communication is continued by narrow straights called the Sound, the Great Belt, and Little Belt. Its total area straights cancus and Belt, and Little Belt. Its total and Belt, and Little Belt. The separating is 166,397 sq. m. The separating factor between the B. and the North Sea is a plateau upon which the is. Zealand, Funen, and Laaland are situated. Its depth has been computed to be 36 ft., which falls considerably lower than that of any other inlet of the sea of similar character. The bed of the B. S. in the deeper parts is generally of soft brown or grey mud, or else of hard Near the low coasts and on the clay. shallower banks fine sand with smallpebbles are seen.

Its navigation is rendered dangerous by shallowness, narrowness, and sudden changes of wind followed quickly by tempestuous storms. It runs eastward into three gulfs, Gulf of Bothnia, the northernmost, Gulf of Finland, and Gulf of Riga. There is not such a quantity of salt in the B. as in other oceans, and the water therefore is clearer on that account. From three to five months of the year access through the sea is hindered by ice, but the whole surface is seldom frozen entirely, though records of that event have been estab. in the years 1658 and 1809. It possesses the characteristic of all inland seas that it is little affected by tides. Nevertheless a perceptible rise and subsequent fall of its waters takes place. This, however, is due more to the variations in the water-bulk of its rivers than to any tidal circumstances. Of the rivs. that discharge their waters into this sea there are 250. resulting in a drainage of almost one-fifth of the area of Europe. The most important of these are the Vistula. Niemen. Dwina

Narva, Neva, while the chief of the 200 churches, conspicuous among is. are Zealand, Funen, Bornholm, which are the Rom. Catholic, Protes-Stamsöe, and Laaland (Denmark); tant Episcopal, and Methodist. One Gottland, Oland, and Hyeen (Sweden); of the first seats of learning in the the Aland Is. (Russia), and Rügen (Prussia). The prin. exports from its bordering countries are timber, furs, tallow, and grain. Amber is cast upon its shores in stormy The canals connecting the weather. B. S. with the North Sea are the Kiel, which cost £8,000,000, and which has groved an immense advantage to Germany; the Eider Canal and the Gotha Canal. The chief harbours in the B. are Copenhagen (Denmark); Kiel, Lubeck, Stralsund, Stettin, Danzig, Konigsberg, and Memel (Germany); Riga, Narva, Kronstadt, and Sveaborg (Russia); and Stockholm and Karlskrona (Sweden).

Baltimore, a port and the largest city of Maryland, U.S.A. It is, as city of Maryland, U.S.A. It is, as regards pop., the seventh largest city of the United States, and is situated on the northern bank of the R. Patapseo, an inlet from Chesapeake Bay. It is 250 m. distant from the ocean by canal. Its environment is pleasing, and its site is of varied alts. In the arrangement of its streets it differs from most of American cities in their strict regularity. It owes a great deal of its importance to its safe harbour, whose minimum depth is 24 ft. Many railways converge at B. and a great trade in bread-stuffs is carried on, while among further articles of export are tobacco, provisions, coal, cotton, naval stores, canned fruit, and oysters. The chief articles imported are guano, coffee, other tropical products, fertilisers, iron, steel, tin-plate, and chemicals. Besides its great shipping trade, B. has extensive manufs. which include cotton and woollen goods, flour, cigars, and other forms of tobacco. beer, glassware, boots, iron and steel, machinery, brid ing, pianos, and

of oysters form industries of B., and many thousands of vessels are engaged in their quest. The splendid appearance of many of its buildings has made additional fame for the tn., among which buildings the most notable are the chamber of commerce, the Rom. Catholic cathedral, the custom-house, the Maryland Institute, and the Peabody Institute.

There are five noteworthy public monuments, the chief being that of Washington, a column 210 ft. high. The fineness of these erections have caused B. to be called the 'monu-mental city.' The most famous of its many beautiful parks is the Druids' Hill Park of nearly 700 acres in There are approximately extent.

country is the John Hopkins University, founded by a philanthropist of the name. It was opened in 1876. Other educational centres are the B. city college, the academy of science. the law school, St. Mary's University, Loyola College. Among many libraries the largest is the Peabody Institute, 1876. As a social centre and a tn. famous

for its enthusiasm for art. B. is specially to be noted. It has the see of a Rom. Catholic archbishop, who acts as primate of U.S.A. Dr. John Carrol was the first archbishop. The native r ment of Ger. Irish and Fr. days when B. was a colony, the Puritans and Scotch-Irish Presbyterians were in great numbers. The city was founded in who estab.

the wars o scene of many engagements. Its pop. in 1900 was 508,597.

Baltimore. George Calvert. Baron (1580-1632), Eng. politician. He was a native of Yorkshire, and was educated at Trinity College, Oxford. He became secretary to Robert Cecil, afterwards Earl of Salisbury. helped James I. in a discourse against

connected with the growth of our colonial empire, in which development he was much interested. He estab. a settlement at Newfoundland in 1621. and attempted a similar settlement and accompled a similar settlement in Virginia, but his refusal to sign oaths of allegiance prevented the execution of his project. He wrote An Answer to Tom Tell-Troth, and many of his letters are found in the Clarendon State Papers.

Baltimore and Ohio Railway, see UNITED STATES OF AMERICA.

Baltimore Bird, or Oriole (Iclcrus Baltimorii). It is very common all over N. America, and is something like a finch, measuring about 7 in. from the tip of its long, sharp, beak to the end of its rounded tail. beak is conical and longer than the head, and the wings long and pointed. The males come N. early in May, proceding the females by a few days. They choose a spot preferably near houses, and build a beautiful hanging nest, from 6 to 7 in. long, in a tulip tree or pea-vine, taking their materials

from moss patches, cattle hairs, or fibres. Their plumage, especially of the males, is very gay, glossy black, orange, and vermilion. Orange and orange, and verminon. Orange and vermilion were the colours of the livery of Lord Baltimore, whence the name. It is also called 'fire-bird' from its bright plumage, and hang-pest, from its method of building. The B. B. has a strong and sweet song particularly pleasing during its mating season, and is gregarious in habit-Although they do much damage among the fruit, they rid the orchardof such insects as the canker-worsa and tent-caterpillar. See Baird. Brewer, and Ridgway, N. American Birds.

Baltinglass, a market th., 36 m. W. by S. from Wicklow, is a small and ill-built town. Pop. about 2000.

Baltistan, otherwise Little Tibet, a mountainous region below the Kara-Korun Mts. and the Himalayas. Its mean elevation is 11,000 ft. The Upper Indus flows through the region which contains a high peak, nameless but for a mark, K². Its height is 25.278 ft.. and hence it is the second highest mt. on the globe. The inhab, are Mongolese, and politically it forms part of Kashinir.

Baltjik, a Bulgarian scaport on the Black Sea. It is situated 20 m. N.E. of Varna. The ruins of Tomi, the scene of Ovid's exile, are near it. Its pop.

ic 4000.

Baltzer, Edward (1814-57), a Ger. minister who founded a free Pro-testant community at Nordhausen, was a member of the National Assembly at Frankfort, and estable a society in 1868 to further vegetarianism. He was the author of many theological and sociological works, and of a book on vegetarian cooling.

Baluba, a large negroid tribe of the Congo Free State, living between the Kassai and Lubilash rivers.

Baluchistan (Beluchistan), a country in S. Asia. Its boundaries are: on the N., Afghanistan: on the E., Sind: on the S. it the Arabian Sea: and on the W., Kerman, a prov. of Persia. There is no permanent fixity in the frontier between B. and Afghanistan, though its Indian boundaries are more clearly marked. It has a coast-line of 509 m. The anct, dominion of Padro-ia beara certain relation to the present B., whose extent does not equal exactly that of the preceding kingdom, which extended to the Indus. Approxi-mately, so far as may be estimated from the vague line of demarcation on the Aighan borders, the area is 132.00% sq. m. Its pop. in 1901 was 914,531. Much of the country is still un-known save to a small number of explorers, and any thorough know-

ledge possessed of portions of it has only been gathered since 1510. Formerly it formed a part of Persia, though its modern relations with India are more pronounced, especially since the establishment of British jurisdiction over sind and Multan. the surface is mountainous, parti-cularly in the northern region. Here there is an elevation of 12,000 ft. formed by the spure of the Sulimen Mts. In the s. the direction of the mt. systems runs from E. to W., while northwards the mis, are stretched across from N to S. The chief routes are the vallers formed by the parallel mit chains of the S. The only settled thoroughfares are those to Quetta and there are those to the talling passes respectively. Some of the ralleys are as high as 570% ft. at their bottom, and Kelät, the cap, on the slope of one of these, is itself of 15 ft. high. Large tracts of the country are formed of impassable deserts, subject to fierce sandstorms in summer and equally formidable cold winds in winter. The rivers are dependent upon the heavy rains, and when these fall are scon exhausted. This desolate character is chiefly true of the W. region. The temp, varies between sud-denly changing extremes. In March the thermometer has registered actually 125° F. at Kelát, in spite of excessive cold in the previous mouth that has fallen many degrees mount that has have man, re-below zero. Necessarily, therefore, pasturage is very scarce, and cattle are consequently few in number. Sheep and goats are numerous, how-ever. The nature of most of the soil makes the camel the most useful beast of burden, while in the N.W. horses bearing traces of Arab pedigree are reared.

Among the wild animals are the tizer, leopard wolf, hyena, ape, while fish are caught in large numbers of the coasts. These regions that enjoy sufficient rainfall are fairly productive, among the crops being tobacco, rice, engar, and cotton: wheat, parley, madder, maize, and pulse flourish in the more elevated districts. Trees are scarce, those found at all growing mostly upon the mt. siopes. include the olive and peach, while parts of the desert furnish trushwood. Fruit- are many, and targe quantities are produced in the gardens: the Mearan dist. -pecalises in date growing.

Of the mineral wealth of B . zold, silver, lead, antimony, iron, copper, sulphur, aium, and sai-ammoniae are among the most pientiful deposits. among the most present appears.
In 1857 a valuable petroleum well was discovered in the N.
Kelat is the only the, and is the cap.

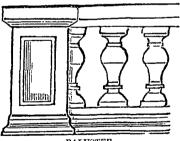
It has about 14,000 inhab. A general

character of wretchedness marks the dwellings of the town, a trait which also is observed in the small fishing villages of the S. Some roadsteads in a somewhat better condition are found on the sandy parts of the coast, among them being Southing Rev. [677; Miscellanca, 1678-1715; Nota among them being Southing Rev. [683]. among them being Soumiani Bay, Homara, and Gwadar. The natives are formed of Brahui and Baluchis, the former being the dominant race. The dominion is ruled by the Khan

of Kelát, who in 1839 was punished by the British for treachery. British right to occupy Quetta was secured in 1877, and since 1893 its adminis-tration has been transferred to a British agent of the Nushki district. See Bellew. From the Indus to the Tigris, 1874, and works on Baluchistan by Hughes (1877) and Oliver

Balue, Jean de la (1421-91), Fr. cardinal and minister of Louis XI. He was first introduced to Louis by Charles de Melun, and he became chaplain to the king, comptroller of finances, secretary of state, bishop of Evreux, 1464; bishop of Angers, 1467; and cardinal 1483. He intrigued with the Duke of Burgundy, Charles le Téméraire, against Louis, for which he was imprisoned in an iron cage in the castle of Onzain 1469. He was, however, released in 1480, and went to Rome.

Baluster, or Banister (from Lat. balaustium, the flower of the pomegranate), the name given to pillars or shafts supporting a cornice or



BALUSTER

coping. The pear-shaped swelling at the lower end of the pillar accounts for the origin of the name.

Balustrade, is the range of equidistant balusters together with the cornice or coping they support. They are used as parapets or to enclose stairs, and may be decorated with various devices.

Baluze, Etienne (1630-1718), Fr. storian. He served as bursar at St. historian. He served as bursar at St. Martial College, Toulouse, 1646-54, and during that time his work Anti-

Collectio Conciliorum, 1683; Paparum Avenionensium, 1693; Historiæ Tutelensis Libri III.. 1711. On account of his Histoire généc-logique de la maison d'Auvergne, 1708, B. was exiled in 1710, but was re-called to Paris in 1713.

Balzac, Honoré de (1799-1850), a Fr. novelist, born at Tours, of a well-to-do bourgeois family. From 1806 to 1813 he attended the Collège de Vendôme, and for the fol-lowing three years the Collège de Tours, but he showed no aptitude for study, though he must have read widely in his early youth. Much of his school life is reflected in the pages of Louis Lambert, 1832. His father put him to study law at Sorbonne, but Balzac kicked over the traces. refused to practice, and in 1819 went to Paris, perfectly confident of his vocation. From 1820 to 1829 he was an apprentice to his trade—trying his hand at tragedy and at novel writing, but making very little progress in either. It was a period of hard work and great privation. In 1825 he started business as a publisher, printer, and type founder—a speculation which entailed debts that harassed him almost to the end of his life. The publication of Les Chouans in 1829 marks the beginning of his literary career. Though it has been termed melodramatic, it is incomparably superior to his previous work, giving a brightly-coloured picture of Brittany in 1799, and containing scenes of real passion. The imitation of Scott is obvious.

From 1829 Balzac worked with fierce, untiring energy, and a fertility that almost passes belief. In twenty years he produced eighty-five novels, in addition to his dramatic attempts, articles to the newspapers, miscel-laneous minor works, and a lengthy correspondence, addressed chiefly to his sister Laure and her friend Mme. Some of his best Zulma Carrand. known works may be mentioned: Contes Drôlatiques, which are written in a Rabelaisian vein, and must be classed separately from his novels; caissea separately from his novels; La Maison du Chat-qui-pélole, 1830; La Femme de Trente Ans, 1831; Le Peau de Chagrin, 1831; Le Chef-d'œuvre inconnu, 1831; Le Bourse, 1832; Eugénie Grandet, 1833; Les Marana, 1833; Père Goriot, 1834; Le recherche de l'absolu, 1834; Séra-phila 1835; Les Illusions Perdusphita, 1835: Les Illusions Perducs, 1843; La Cousine Bette, 1846.

His output, in fact, was prodigious.

He conceived the idea of uniting his various pieces into one mighty whole, under the title *La Cométie Humaine*, vierge, 1859; and 'Le Triomphe de which should comprise all the multifarious aspects of life—scènes de la rie Balzer, Johann (1738-99), Ger. en-

achieved it. including Victor Hugo, Vigny, George became well-known engravers. Sand, and Lamartine. He fell in love Balzico, Alfonso, an I including Victor Hugo, Viguy, George Balzico, Alfonso, an Italian with a Polish lady, Madame Hauska, sculptor, b. at Cava di Tirreni, near who was his ideal to the end of his Salerno, 1825. He studied at the life. Though her husband died in Academy of Naples and at Rome, 1810, debts and other causes prevented Balzac from marrying her till a few months before his death. He was buried in Paris on Aug. 20, 1850, the pall-bearers being Dumas, Hugo, Baroche, and Sainte-Beuve. Hugo delivered the funeral oration over

his friend. B.'s genius is undeniable. He flashed on all the little, unnoticed things the lurid light of his imagination, and therefore he has been called both a realist and a romanticist, according to the point of view of the of Bechuanaland reader. Nothing escaped his notice, Bambarra, a c and in the remorseless handling of his material he has been accused of indecently exposing the sordid, un-healthy side of life. But it cannot be doubted that his aim was moral, in the widest sense of that term. His the widest sense of that term. His stage is so vast, his persons so true to life, that as a creative genius he stands second to none but Shakespeare.

Balzac, Jean Louis Guez de (1597-1654), a celebrated Fr. essay-writer and stylist, b. at Balzac, near Angouginning of polish and elaboration, before unknown in Fr. composition. In spite of his affectations, he was regarded as a master of prose style. lected works were published in 2 vols. (1665).

Balze, Jean Etienne Paul (1815-84). Fr. artist, was b. at Rome, and made his debut at the Salon in 1835 with a painting from Scott's Lady of the Lake. He was assisted by his brother, Jean Antoine Raymond (b. 1818), in his reproductions from Raphael, and in his mural paintings in the palace of the senate representing the great scientific, agricultural, and industrial discoveries of the 19th century.

parisienne, de la vie militaire, de la vie graver; engraved and edited at Lissa privée, and so on. This vast scheme, and Prague many country scenes and of course, was not completed, and portraits of famous persons. Among no human brain could ever have the latter were Emperor Joseph II., hieved it.
Archduke Maximilian, Maria Theresa,
In Paris he made numerous friends, and Wenzel Hollar. His two sons also

where he executed the colossal statue of John the Baptist. 'Cleopatra,'
'The Coquette,' Revenge, and 'The The Coquette, Revenge, and The Tree' were executed by special request of King Victor Emmanuel. His other works include 'Massimo d'Azeglio,' 1873, and 'Duke Ferdinand of Genoa,' both at Turin. and 'Victor Emmanuel,' 1897, at Naples.

Bamanguato, or Bamangwato, an African tribe, of the Bantu race, inhabiting the dist. of the protectorate

Bambarra, a country in Western Africa, in the upper valley of the Niger, bounded on the N. by the desert of Sahara. The pop., estimated at 2,000,000, is made up of negroes, Mandingoes, and Foulahs. The climate is hot and oppressive in the plains but is comparatively coal in plains, but is comparatively cool in the mountainous region to the S.W. The rainy season lasts from June to November, and the country is visited by violent tornadoes. The minerals iron, gold, and salt are found, but not in very large quantities. The soil is lême. He went to Italy with Cardinal very fertile, the products being rice, de la Valette, and was struck by the maize, cotton, millet, vams, waterrich smoothness of the Italian style melons, French beans, onions, and as compared with that of his own other vegetables. The tobacco and country. His writings mark the be-indigo plants are also cultivated. Among the trees are the pistachio, the shea-tree, from the kernel of which a kind of butter is extracted, the tamarind, and the Rhamnus lotus. His Letters were pub. in 1624; Le Numerous animals are found in the Prince, 1631; Discours, 1644; Le Numerous animals are found in the Prince, 1631; Discours, 1644; Le country—cattle, sheep, horses, alli-Barbon, 1648; Aristippe. He joined gators, turtles, pelicans, egrets, teals, the French Academy in 1634, and and Barbary ducks. The prin. tns. are was a friend of Richelieu. His col-Segu. Bamaku. Sansanding, and and Barbary ducks. The prin. tns. are Segu, Bamaku, Sansandinz, and Segu, Bamaku, Sansanding, and Jamina. The country has lately come under French influence.

Bamberg, a city of Upper Fran-conia, Bavaria, situated on the Regnitz. not far from its entrance into the Main, 33 m. N.W. of Nuremberg. There are many interesting buildings of an early date-the old castle of the former prince-bishops of B., the ruins of the castle of Altenburg, once the seat of the Count of Babenberg, and the cathedral. The last-named is a magnificent structure in the Byzan-

tine style, founded by the Eniperor dentry II. in 1004. It suffered from a conflagration and was restored in 1110. There are many interesting medieval tombs, a beautifully carved some every year, and others at longer styles. choir screen, and the crypt is a fine example of early Romanesque. modern buildings include an art gallery, a municipal hospital, and educational and charitable institu-The industries consist of the manuf. of gloves, leather, woollens, sugar, starch, and beer. Pop. (1905) 93,882.

Bamberger, Ludwig (1823-99), a Ger. politician and economist, born at Mainz, of Jewish parentage, studied law at Giessen, Heidelberg, and Göt-tingen. He took part in the revolutionary movement at the time when he was editing the Mainzer Zeitung (1848-9).He was a member of the National Liberal party in the German Reichstag (1871-80). He was a free-trader and opposed the economic policy of Prince Bismarck. With other Liberals he seceded from the With party, forming a group of sionists,' the later Liberal Secesunion which opposed the colonial policy of the gov. He produced many books on political and economic questions: Erlebnisse aus der pfalzischen Erne-bung, 1849; Monsieur de Bismarck, 1868: Die fünf Milliarden, 1873; Deutschthum und Judenthum, 1880. Bambino (It., babe), a term in art applied to the swaddled figure of

the infant Christ, and particularly to the Santissimo B. in the church of Ara Cœli, Rome, which is supposed to have miraculous healing power. It is a richly decorated figure carved in The festival of the B. takes

place at Epiphany.

Bamboccio, Peter de Laerne (1613-73), Dutch artist, born at Laerne. Holland. He was sent to Rome by his parents to study art. Classical art he neglected, and delighted in fairs, rustic parties, banditti, etc., subjects which the Italians comprise under the general name bambocciati. Hence his name, Bamboccio, not, as some have said, owing to the deformity of his person.

Bamboo is the common name of Bambusa, a genus of Gramineæ which grows in the tropics of Asia, Africa, The plants are in and America. reality merely gigantic grasses with a jointed subterranean rhizome, which is the true trunk of the B., the shoots being the branches. The stems are hollow and contain only a light pith, but they are jointed and at the nodes strong partitions stretch across the inside. The Bs. grow in clumps, and may reach a height of 120 ft. and a thickness of 10 in. The young plants for the first few years are concerned

intervals.

The B. is noted for its great economic importance, and serves a variety of useful purposes. The young shoots of some species are cut when tender and eaten like asparagus; the seeds also are sometimes used as food, and for making beer; some species exude a saccharine juice at the nodes which is of domestic value; the rhizomes and shoots, when pickled, form a condiment; silica, found in the stems of B. arundinacca, is used in eastern medicine. The hard stems are converted into bows, arrows, quivers, lance-shafts, masts of vessels. bed-posts, walking-sticks, poles of palanquins, rustic bridges, bee-hives, water-pipes, gutters, furniture, ladders, domestic utensils, and agricultural implements. Split up finely they afford a most durable material for weaving into mats, baskets, windowblinds, ropes, and even sails of boats. Perhaps the greatest use to which they are put is in building, for in India, China, Japan, Assam, Malay, and other countries of the East, houses are frequently constructed solely of this material.

Bamborough Castle, in the vil. of B., off the coast of Northumberland, 16½ m. S.E. of Berwick. According to the A.-S. Chronicle it was built by Ida, first King of Northumbria, in 547, and called Bebbanburh after his wife, Bebbe. It is very impressive in its massive strength and dignity, rising high out of a rock 150 ft. above the sea. It belongs to the Norman period, and has a fine keep and an apsidal chapel dedicated to St. Peter. The castle was attacked by Penda, King of Mercia, in 642, and was twice taken by Dan. invaders. In 1095 Robert de Moubray surrendered the castle to William Rufus. During the Wars of the Roses it was twice taken by the Yorkists and twice recaptured Margaret. Elizabeth appointed Sir John Forster to be its governor, but this right was forfeited by his descendant, Tom Forster, for his share in the rising of '15. In 1721 the castle was bought by Lord Crewe, and its restoration was carried out under the direction of Rev. Dr. John Sharpe. From this time onwards the proceeds from the castle went to charitable purposes till in 1894 it was bought by Lord Armstrong for almshouses. B. was a royal borough and returned two members to parlia-Grace Darling's grave is in ment. the churchyard.

Bambuk, a hilly country in W.

the R. Senegal and its trib. Falemé. The vegetation consists of tamarind, baobab, calabash, acacias, and palm-trees. Maize, rice, millet, cotton, and water-melons are cultivated. The country is rich in iron-ore and gold deposits, the latter especially in the R. Falemé. The pop., estimated at 800,000, consists of Mandingoes, pro-fessedly Mohammedans. The country belonged to the Portuguese in the: 15th century, and was recognised as The part of the Fr. Soudan in 1858. chief the are Kayes, Faranaba, and Mardinka.

Bambusa, a genus of tropical grasses consisting of the various species of

bamboo (q.v.).

Bamian, a famous valley in Afghanistan, 50 m. N.W. of Kabul, near the northern base of the Koh-i-baba Mts. The Bamian or Hahkhak I as, at an elevation of 8496 ft., on the road from Kabul, is the only known be associated with cursing. Hence pass for military purposes over the the common use of the term. Personne crossed by sons who escaped from justice or Alexander the Great. There are a number of cells hewn in the rock, and carved human figures of enormous The largest figure stands 173 ft. size. These remains seem to indihigh. cate that the place was once a centre of Buddhist worship. There are many interesting ruins of mosques and tombs belonging to the old city Ghulghuleh, which was destroyed in 1221 by the Mongols under Genghis

Khan.

Bampton, a market town in co.
Devon, 6 m. N. of Tiverton. There is
a weekly mrkt. held on Saturday, and
the property one on Whit two fairs in the year, one on Whit Tuesday, and one on the last Thursday in October. Pop. (1901) 1657. Bampton, John (1689-1751)

Eng. divine and the founder of the B.

from 1718 till his death.

Bampton Lectures, a course of eight divinity lecture sermons, called after of the Hungarian mitheir founder, the Rev. John B., canon of Salisbury (1689-1751), who left an estate of £120 for their endowers. They are preached in alternate Hungarian ministers. years at Great St. Mary's, and thirty copies are pub. within two months of their being preached at the expense of the estate. The lecture is chosen on the fourth Tuesday in Easter term species of the small order Musacew, by the heads of colleges, and the lecturer must be an M.A. of Oxford or Cambridge, and cannot be chosen berry, from which, through over-cultivation, the seeds have disappeared, and forms one of the most valuable of the contract of the contr

Africa, formed by the angle between the writings of the primitive Fathers as to the Faith and Practice of the Primi-The climate is unhealthy, but the soil tive Church—upon the Divinity of is rich and remarkable for its fertility. our Lord and Saviour Jesus Christ upon the Divinity of the Holy Ghost upon the articles of the Christian comprehended Faith, as The Apostles' and Nicene Creeds.'

d Nicene convord found in ma Ban. many languages in modern various senses, but as the idea of publication or proclamation runs through them all, it is, probably, the ancient word B. still preserved in Gaelic and Welsh, with the sense of proclaiming. It occurs in Spenser, Marlowe, and Shakespeare. On the foundation of churches and monasteries, writings were drawn up speci-fying what lands the founders and other benefactors endowed them, and as these frequently concluded with curses which would fall on any one who should attempt to divert the a B. (see Banishment). A similar word was used in Germany with the sense of outlawry. In France a pro-clamation to call the people to arms was called a B., and those people liable to be called out came under the same name, so we have the banlieue of a city, and hence the modern use of the word. The French also use the word in the sense of the English word banns (q.v., under MARRIAGE).

Ban, Banus, from the Slavonian ban, a chief, was the name given to a governor of certain dists. in the kingdom of Hungary, Dalmatia, Croatia, Slavonia, Bosnia, and Szörény. His power was unlimited, like that of a margrave, and he took command in time of war for the defence of his banat. In 1849 the Bs. of Croatia. Lectures (q.v.). He graduated from banat. In 1849 the Bs. of Croatia, Trinity College, Oxford, 1709, and Slavonia, and Dalmata were detook his M.A. in 1712. He held a clared independent of Hungary and preferment in Salisbury Cathedral received their orders from Vienna. In the year 1867 these banats were incorporated with Hungary, and one of the Hungarian ministers was appointed B. of Croatia and Slavonia by the king under the direction of the president of the council and the

> Banam, a tn. in Cambodia, Cochin China, on the Tien, cap. of the prov.

B.; pop. 28,000.

Scriptures-upon the authority of foods. The plantain or pisang, tech-

nically known as M. paradisiaca, has 1469. a larger fruit of a milder taste. The was d



BANANA TREE as Manila hemp.

Banana, a trading-port of the Congo Free State, Western Africa, cap. of the dist. of the same name. It is situated at the N. of the mouth of the Congo. There are a number of Eng., Fr., and Dutch factories, and steam ships run to Liverpool, Antwerp, and Hamburg. Thechief exports are palmoil and nuts, gum and rubber.

Bananal, a tn. of Brazil, in the E. of the state of São Paulo, on the railway running between São Paulo

and Rio de Janeiro.

Banas, a riv. of Rajputana, India, near the Aravalli Hills. It flows in a It flows in a north-easterly direction until it joins the Chambal. Length about 300 m.

Banat, in general, a region under a ban; more particularly applied to a dist. in S. Hungary, embracing dist. in S. Hungary, embracing Temes, Torontal, and Krasso-Szörény, though it was never ruled by a ' ban or governor. It is bounded by the or governor. It is bounded by the Maros on the N., Danube on the S., and Theiss on the W. Area 11,009 sq. m.; pop. (1900) 1,336,332. The dist. is one of the most fertile in Europe, the crops of wheat and grain being excellent. The vine is cultivated to a great extent, and there are relyable mineral densitis expecially. valuable mineral deposits, especially coal. The country was in the possession of the Turks, 1652-1716; in 1779 it was united with Hungary; 1849 formed into an Austrian crown land; 1860 restored to Hungary. The prin. town is Temesvár.

Banbridge, a tn. in co. Down, Ireland, on the Bann, 22 m. S.W. of Belfast. Its prin. manuf. is linen.

Pop. (1901) 5006.

Banbury, a tn. in Oxfordshire on the Cherwell and the Oxford Canal, 23 m. N. of Oxford. The tn. has

1469. The old castle, built in 1125, was destroyed during the Civil War, when B. was noted for its Puritanic The term ' B. man ' came to be used as an equivalent for a typical Puritan. B. Cross, of nursery rhyme fame, existed down to the time of Queen Elizabeth, and has now been replaced by a modern one. The tn. is still noted for its cake, cheese, and

ales; the prin. industry is the manut.
of agric, implements. Pop. 12,967.

Banc, in law, a seat or bench of justice. 'Sittings in B.' or 'in banco' were formerly held at Westminster before two or more judges of the King's Bench and Exchequer and the Courte of Courter of Courter of the season of Courts of Common Pleas. By the Judicature Act of 1873 two or more judges of the King's Bench or Probate Div. of the High Court, sitting to-gether 'in B.' for the purpose of trying issues of fact, are called a

divisional court.

Banca, an is. in the Malay Archipelago, belonging to the Dutch, situated S.E. of Sumatra, from which it is separated by the Strait of B. With one or two neighbouring is, it forms a separate Dutch residency; pop. (1900) 106,305, of which a large majority are Chinese. Area about 4500 sq. m. The most important product is tin, but other minerals found are gold. iron, silver, lead, amber, arsenic, and lignite. The chief vegetable products bananas, durian, cocoa - nuts. are nutmegs, benzoin, and sago.

Banchory, a vil. of Scotland, in Kincardineshire, on the l. b. of the Dee, 16 m. from Aberdeen, on the Deeside Railway; pop. about 1500. Banco, a financial term, signifying

the standard value in which banks formerly kept their accounts. not represented by any coinage. fixed value was necessary, owing to the depreciation of currency when coins were chipped, or worn, etc. These the early banks of Amsterdam, Hamburg, Venice, Genoa, and other places received at their intrinsic, not

nominal, value.

Bancroft, George (1800-91), eminent American historian, diplomat, and statesman. He graduated from Harvard College at the age of seventeen, studied history in Göttingen, where he received a degree of doctor of philosophy, and on his return to America in 1820 became Gk. tutor at his own college. In conjunction with Dr. Joseph Cogswell he estab. a.school at Northampton, with which he was connected till 1830, when he devoted himself wholly to historical studies. He was made colthe Cherwell and the Oxford Canal, lector of the port of Boston, 1838-41. By President Van Buren. As secre-historic interests. The Yorkists were defeated in the neighbourhood in the cabinet of President Polk, 1845. Appointed minister to Great Britain, 1846-49, minister to Berlin, 1867-74. He was a keen democrat, and his historical work, written at the time of the Civil War, was influential in inspiring an ideal conception of liberty in the people of his generation. The first vol. of The History of the United States appeared in 1834. His miscellaneous publications are numerous and include: Poems, 1823; History of the Colonisation of the United States 1841; An Oration (in memory of Andrew Jackson), 1845; A Plea for the Constitution of the United States, 1886; Martin Van Buren, 1889.

Bancroft, Hubert Howe, an America 1886; Hubert Howe, an American 1886; Martin Van Buren, 1889.

Bancroft, Hubert Howe, an American historian, b. at Granville, Ohio, 1832. He started a bookshop at San Francisco in 1852, and made a large fortune which he has devoted to collecting documents, chiefly about American history, and forming a fine library. His own contributions to historical literature are: The Native Races of the Pacific States, 1874-6; The History of the Pacific States of N. America, 1882-90; Popular History of the Mexican People, 1888; British Columbia, 1887; The New Pacific,

1000

Bancroft, Richard (1544-1610), an Eng. prelate. He was born at Farnworth, Lancashire, and was sent at the expense of his great-uncle, Hugh Curroen, Archbishop of Dublin, to Cambridge. In 1576 he became rector of Teversham, near Cambridge, and rose rapidly to the bishopric of London in 1597. He became Archbishop of Canterbury in 1604, and chancellor of Oxford University in 1608. In the reign of James I. he was appointed commissioner on behalf of the Church of England in the Hampton Court Conference. He was a bitter opponent of Puritanism and zealous supporter of the theory of the divine origin of episcopacy.

Bancroft, Sir Squire, an Eng. actormanager, born in London 1841. His first appearance on the stage was at the Theatre Royal, Birmingham, as Lieutenant Manley in St. Mary's Eve. He remained in the provs. for four years. In 1865 he appeared in London at the Prince of Wales' Theatre as the leading actor, under the management of H. J. Byron and Marie Effle Wilton. Two years later the maried Miss Wilton and continued with her the management of the Prince of Wales' till 1880, when they moved to the Haymarket. They retired together in 1885. In 1893 he appeared by the command of the late Queen Victoria at Balmoral Castle in Diplomacy. He was knighted in 1897. By his recitations of the Christmas Carol he has collected large sums of money for hospitals.

Collaborated with Lady B. in Mr. and Mrs. Bancroft On and Off the Stage, Written by Themselves, 1888; and is the author of the Bancroft Recollections of Sixty Years.

Band, in architecture, the name given to a flat face or fascia, encircling a building or continued along a wall, usually horizontally. Also used of a

B. of foliage, quatrefoils, or bricks. Special varieties of Bs. are indicated by the terms lintel course, frieze, plat band, string course, etc.



BAND

course, etc.
The B. of a shaft is the moulding which

moulding which encircles pillars or small shafts. characteristic of Gothic architecture, and very prevalent in the Early

English style.

Band, the linen appendage to the neck-cloth or collar forming a part of the clerical, legal, or academic costume. Some regard it as a survival of the amicc, while others date it back to the collar worn by laymen in the reign of James I. It still forms part of the legal costume in England, but has been replaced in Scotland by the white tie, except in the case of the king's counsel. It is seldom worn in the Anglican Church, except by a few low churchmen, but is commonly used by ordained Presbyterian ministers as distinguished from licentiates.

Band: 1. Military.—Military Bs. are composed wholly of wind instruments and drums. The Bs. attached to British regiments are 'brass Bs.' and 'drums and fifes,' and to Scottish regiments 'pipers.' The instruments used in cavalry and artillery regiments are bugles and trumpets, and in infantry and Highland regiments bugles, fifes, bagpipes, and drums. In 1857 the gov. instituted a Royal Military School of Music at Kneller Hall, near Twickenham, which was at first supported partly by gov. and partly by the various British regiments. In 1867, however, the War Office took over the entire expenses. This institution trains B. sergeants, recommended by their commanding-officers, for the position of bandmaster, and also trains promising young instrumentalists from such schools as the Duke of York's. According to the gov. regulations, each B. consists of a band-master and band-sergeant, and in cavalry regiments fifteen privates, and in infantry twenty privates, in addition to the trumpeters, buglers, and drummers. The total number of performers is usually between forty and fifty.

Every officer, when serving abroad, the Dutch c. 1580. contributes not more than twelve days' pay of his rank to the B. fund. Apart from these subscriptions, gov. maintains the upkeep of regimental The best known military Bs. are the guards, the royal engineers, the royal artillery, and the royal marines. The duty of regimental Bs. is to play at parade, at 'marches out,' at the officers' mess, and when required to When the do so by their officers. regiment leaves home on active service the B. is usually left at home, unless the regiment is expected to be absent on long service.

2. Naval.—Flag-ships and other large ships in the Royal Navy, when commanded by an officer of postand other captain or of higher rank, very frequently possess Bs. The number of performers ranges between ten and fifteen, the bandsmen being recruited from the boy Bs. of training ships.

3. Volunteer, etc.—With the growth

of the volunteer movement, many volunteer Bs. have been formed, which are organised as far as possible on the model of the army Bs. Many

tns. and dists. possess brass Bs., more or less resembling military bands. Band, Bund, or Bend, the Persian word for a dyke or artificial embankword for a dyke or artificial embank-ment, is often met with as a com-ponent part of names in eastern geo-graphy; for example, in the name of the Persian riv. Band-Emir. This riv. was so called after Emir Azadad-daula, a governor of Farsistan, who raised a dyke on the riv. near the ruins of Persepolis in order to procure water for fertilising the land water for fertilising the land.

Banda, cap. of the dist. of the same name, United Provs., India, situated on the r. b. of the R. Ken. There are 66 mosques and 161 Hindu temples in the city. It is a centre of the cotton trade. Pop. (1901) 22,565.

The dist. has an area of 3061 sq. m.;

pop. (1901) 631,340.

Banda Islands, a group of is. belonging to the Dutch E. Indies, situated about 50 m. S. of Ceram, their mean lat. and long. being respectively 4° 30′ S. and 129° 50′ E. Area 17 sq. m. The is. are volcanic, the Gunong-Api, 1744 ft. high reins from the control of 1744 ft. high, rising from the centre of the group. There are twelve is. in the group. all, the most important being Banda-Neira, Banda-Lantoir, Gunong-Api, and Pulo-Ay. The pop is estimated at 8000, about 7000 of which are native descendants of emancipated Nutmeg is the chief production, but sago, mace, and cocoanuts are also cultivated. Nassau, in Banda-Neira, is the centre of trade and the seat of the Dutchgovernment.

These is. were first visited by the Portuguese, who made a settlement in 1520, but they were expelled by

The Eng. afterwards contended for a settlement, but the is. were finally acquired by the Dutch, 1801-16.

Bandages are strips of muslin or other material, of varying widths and lengths, used by surgeons to support a part of the body or to restrict movement, to apply pressure in order to prevent bleeding or swelling, or to fix dressings or apparatus in their places. B. may be simple, when they consist of one piece, as the roller and triangular B.; or compound, when they consist of two or more pieces.

The Roller B. is usually a strip of calico, flannel, linen, or muslin. about 18 ft. in length and 2 to 4 in. in width. In bandaging a limb, the turns commence at the extremity and pro-ceed upwards, so that the blood is partly driven from the limb. Circular bandaging consists of taking circular turns around the part, each loop covering about two-thirds of the width of the loop previously applied. Oblique bandaging means making the loops at an oblique angle to the axis of the limb. As the arm and leg gradually increase in diameter from the extremity upwards, simple circular or oblique bandaging would tend to bind the limb by the edge of the strip only, leaving portions of the skin too loosely bound. To remedy this, the B. is occasionally reversed; that is, the strip is turned so that the surface previously in contact with the limb becomes the exterior surface, and vice versa. When a joint such as the knee or elbow has to be passed, the turns cross each other like a figure of 8. The 'spica,' also used for passing projections in the limb, is an arrangement resembling the lapping of the husks in an ear of corn. When sufficient turns have been taken, the end of the B. may be split in two, one tail carried round the limb in a direction reverse to the turns and securely tied to the other tail; a better plan is to sew the end, or fasten it by a safety pin, care being taken to pass the needle or pin through two or three previous loops, so that the whole may be held firmly together without undue pressure from any single loop. The fingers and toes should never be bandaged with two injured surfaces touching, as there would be considerable danger of adhesion. If the extremities of the toes nesion. If the extremities of the toes or fingers are not involved in the injury, they should be left uncovered, as their appearance will indicate whether the circulation has been unduly interfered with, when the B, will have to be readjusted. Any incomplifies of pressure may be may inequalities of pressure be remedied by the use of paddings of cotton wool.

considerable pressure is required, as the ankle, the ends crossed over the in sprains or varicose veins. Martin's rubber B. is used to lend support in cases of varicose veins. It consists of a roller B. which is wound spirally about the leg while the patient is in a horizontal position. It should not be tight, and the necessity for reversing is obviated as the clasticity of the rubber tends to keep all parts of the B. in contact with the surface of the limb. Esmarch's B. is used to prevent homorrhage from a limb during amputation. It is wound spirally about the limb with considerable pressure, beginning at the extremity, so that the blood is driven from the limb as much as possible. When the B. has passed above the seat of the proposed operation, a thick piece of rubber is bound rightly round the limb so as to prevent the return of the blood and thus save it for the remainder of the body. Before the widespread use of anæsthetics such an arrangement was used not only to prevent hemorrhage, but to diminish pain.

The Triangular B. consists of a piece of thin calico made by cutting a square yard diagonally, two such B. being thus provided. The 'broad B.' is made by bringing the right-angled 'point' to the 'centre' the long side and folding the right-angled 'point' to the centre of the long side, and folding the trapezium thus formed once again. The 'narrow B.' is made by folding the broad B. yet again. The triangular B. is used chiefly in 'first aid' work, being adaptable to many different uses. To cover the top of the head for convert dressings on different uses. To cover the top of the Persian word for a har the head for securing dressings on eastern geography freque with as the component par placed between the eyebrows, the point allowed to hang over to the for example, Bender Gez. back of the head, and the ends passed round to the back, crossing over the point and brought together again on the forehead, where they are secured by a reef knot; the point is then turned up and safety-pinned on the top of the head. A sling for fracture of the Collar-bone or fore-arm is made by placing one end of the B. over the sound shoulder, the operator standing over, and his chief work was a colossal in front of the patient; the forearm of statue of Arminius, at Detmold. the injured part is then drawn across which was completed in 1875.

Bandel, Joseph Ernst von (1800-76), Ger. sculptor, born at Ansbach in Eavaria, and died at Neudegr. He studied at Munich, Rome, and Hansound shoulder, the point of the B. Statue of Arminius, at Detmold. The B is brought in front of the M. Is brought in the following end of the B. is brought in front of the arm and carried over the shoulder of the injured side, the two ends being tied behind the neck, but in such a position that the knot is not in the way of the patient when lying down; the 'point' is then brought round the elbow and secured in front by a safety

B. of rubber fabric are used when then brought up above the front of instep, and the point passed under the foot and over again and tied behind the ankle. The triangular B. may also be made into a tourniquet by folding it very narrow and tying a knot in the middle. The knot is placed over the artery when the bleeding occurs in the upper arm or thigh; the ends are passed round the limb and tied tightly. Additional pressure may be imparted by pushing a thick pencil between the tourniquet and the limb, and twisting it. In tying knots in B. the reef-knot must be used in preference to the granny-knot; that is, after tying one knot in the ordinary way, the second half should be tied in the reverse direction.

Bandaisan, a volcano of 5100 ft. in height, situated in the main is, of Japan. A terrible eruption occurred

in 1889. Bandana, the name applied to a particular kind of silk or calico hand-kerchief on which has been printed a pattern made up of spots and diamonds. B. handkerchiefs were originally made in India, but are now manufactured extensively in England. The handkerchief is first dyed one colour, and then placed between leaden plates, on which the pattern has been cut out, and put into a powerful Bramah press, when the colour is discharged by means of a bleaching liquid, and the spots are left white on the dyed background. Bandar, Bundur, Bunder, or Bender, the Persian word for a harbour, is in

eastern geography frequently with as the component part of proper names, especially of many sea-ports;

Bandawe, a mission station in Nyassaland, British S. Africa, on the W. shore of Lake Nyassa. It is situated at the base of the Angoni Mts., and the climate is unhealthy. Bandel, Joseph Ernst von (1800-76),

Mts., noted as the scene of the labours of the Protestant pastor, Oberlin (q.v.). At the entrance to the valley, in the village of Fonday, is his tomb.

Bandello, Matteo (c.1490-1561), an Italian writer of novelle or tales. He was born at Castelnuovo in Piedmont. elbow and secured in front by a safety and in early life entered the Dominipln. To B, the foot, the sole is can order at Milan. In 1525 he left placed on the B., the toes being Italy after the battle of Pavia, and directed to the point. The point is settled in France, where he became

Bishop of Agen (1550) and died there eleven years later. His novelle, which are 214 in number, rank second to Boccaccio's, and provided themes for Shakespeare, Massinger, Byron, and others. They were pub. at Lucca in 1554 and at Lyons in 1573. The well-known English translation is that of Fenton, 1567. The novelle, like most of that period, are coarse in parts, but they are written with great simplicity and fluency, and the narrative is vivid and direct, B.'s characterisation is excellent, but he lacks the wise humour of his master, Boccaccio.

Banderole (It. banderuola, little banner), a small streamer fixed to and

folding over the staff of a crozier.

Bandes Noires. This appellation was first given to a body of Ger. footsoldiers, who were employed in the Italian wars by Louis XII. of France, in consequence of their carrying black ensigns after the death of a favourite commander. Another body of troops, formed of Italians, afterwards took the same name from the same cause, on occasion of the death, in 1526, of their leader Giovanni de' Medici: and still later the Fr. regiment of Piedmont, who had served for a long while in Italy, followed the same example after the death of their colonel, the Comte de Brissac in 1569.

Band-fish is a marine fish of the family Cepolidæ. It is elongated and has spiny rays. Cepola rubescens, the red band-fish, is a British species of vivid hue, and is about 15 in. long.

Bandicoot is the common name for the family of the Marsupials known as Peramelidæ. They are all natives of Australasia, and none are larger than a hare. In the structure of the hind feet they resemble the kangaroo, but there is less disproportion between the limbs. They are all insectivorous, but sev. species are omnivorous.



LONG-NOSED BANDICOOT

Peragale are the rabbit Bs., P. legatis being known as the native rabbit in W. Australia; Perameles, which are fond of an herbaceous diet, include P. nasuta, long-nosed B., and P. myosuros, saddle-backed B.; Charopus Cheropus are the pig-footed bandicoots.

Bandicoot Rat is a species of Nesokia, its scientific name being N. bandicota. It is a rodent of the family Muridæ, to which rats and mice belong. It is a native of the East, and its flesh is eaten by Indians and Ceylonese.

Bandiera, Attilio and Emilio, brothers of a Venetian family who incited a rising against the Bourbon tyranny of Naples in favour of Italian independence, 1843. The rising failed and they fled to Corfu. With about twenty comrades they landed at Calabria, expecting that their arrival would be the signal for a revolt. However, they were betrayed by one of their companions and were shot, with six others, in the Square of Cosenza, July 25, 1844. Their letters to Mazzini, which were opened by the British gov., aroused keen interest, and were pub. by Mazzini under the title of Ricordi dei Bandiera, 1844.

Bandinelli, Baccio, or Bartolommeo (c. 1489-1561), Italian sculptor and painter, and disciple of Leonardo da Vinci. According to Vasari, his affection for da Vinci and hatred for Michael Angelo led him to destroy the famous cartoon of the latter, which was supposed to excel Da Vinci's on the same subject. Amongst his best known sculptures are a statue

of St. Peter, a fine copy of the Laocoon, 'Hercules slaying Cœus,' Baccus and Orpheus,' and 'Adam and Evc.' See Vasari's Lives and Benvenuto Ccllini's

Autobiography.

Banditti, see Brigands.
Band of Hope Movement, started about 1847 with a number of disconnected children's temperance societies, organised itself in 1855 into The United Kingdom Band of Hope Union, which has now over 25,000 branches and upwards of 3,000,000 members. The official organ of the union is the Band of Hope Chronicle.

Bandolier, also Bandoleer and Bandileer, a broad leather belt worn over the shoulder, across the breast, and under the arm. As worn by the old musketeers, it had attached a bag for balls and a number of metal cases or pipes, each containing a charge of gunpowder. The modern B., as used in the British army, is fitted with leather pockets for cartridges.

Bandoline, a gummy perfumed substance, variously produced from quince seeds, gum tragacanth, and Irish or Iceland moss, used to impart glossiness and stiffness to the hair. It is usually scented with otto of roses

or oil of bitter almonds.

Bandon, or Bandonbridge, a tn., co. Cork, Ireland, 20 m. S.W. of Cork, on both banks of R. Bandon. Has dis-tilleries and woollen, leather, and cotton industries. Pop. 3000. The cotton industries. Pop. 3000. The R. Bandon, 40 m. long, rises in the flows S.E. into the harbour of Kinsale.

Bandong, tn., Java, 75 m. S.E. of atavia. It is situated on the W. coast, near the volcano of Guntur. Pop. 20,000.

Bandra, a tn. in the Thána dist.. British India, connected with Bombay by a causeway and bridge; pop. 20,000, of which about 6500 are

Christians. Bandy, or hockey on the ice, is a game very similar to hockey on land. It is played by skaters on broad sheets of ice, preferably not less than 100 yds. by 50 yds. There are two opposing teams, consisting of eleven players each. The B. is a stick, not quite so curved as an ordinary hockey stick, and with both sides flat; it is made of ash wood, without any metal bindings, and is about 31 ft. long. The B. must never be raised above the shoulder during the play. The ball (sometimes called 'cat') is made of solid india-rubber, and is about the size of a tennis-ball. The goals consist of two upright posts, 12 ft. apart, and are placed facing each other in the centre of the short sides of the ground. The game lasts 1½ hr. with an interval for 'half-time,' when the players change ends.

The game is popular in the United States (where it goes by the name of shinney or shinty), and in Holland, Norway, Sweden, and Switzerland. In England the popularity of the game must necessarily suffer from the uncertainty of the climate, but there are a good number of clubs, notably one at Virginia Water, Surrey, and at Bury Fen, Hunts. Baneberry, or Herb Christopher, is

the Aclaa spicala, a species of Ranun-culacea, a native of Europe. When mature the plant bears black and

poisonous berries.

Baner, Banner, or Banier, Johan (1596-1641), Swedish general, was b. at Djursholm near Stockholm, and d. at Halberstadt in Germany. At the battle of Breitenfeld, Sept. 17, 1631, he commanded the right wing of the army under Gustavus Adolphus, and on the death of Gustavus he was made field-marshal. His two most celebrated victories were those of Witt-

stock in 1636 and Chemnitz in 1639.

Banff: 1. Seaport, royal and parliamentary burgh, and cap. of Banff: at mouth of R. Deveron, on the Moray Firth, 50 m. N.W. of Aberdeen by rail. It has woollen, leather, rope, and sail manufs., iron foundries and shipbuilding yards, and is the head-quarters of an important fishing industry. There is a considerable export trade. The adjacent tn. of Macduff, with a good harbour, is included in the burgh. Amongst the chief edifices

Carberry Mts., near Dunmanway, and | are the county buildings, the town hall, the Chalmers hospital. academy, the masonic hall, and the museum. Duff House, presented to the burgh by the late Duke of Fife in 1906, contains a fine collection of pictures and an armoury. B. is a place of considerable antiquity, having received its first charter from Malcolm IV. in 1163. The old castle, of which but little now remains, was the bp. of Archbishop Sharp. The modern castle is the property of the Farl of Seafield. See Finlach's History of Banff, 1868, and Cramond's Annals of Banff, and Cramond's Annals of Banff, 1891, etc. Pop. 3800. 2. Post-tn., and Cramond 1891, etc. Pop. 3800. 2. Post-tn., Alberta. Canada, on the Canadian Pacific Railway, 922 m. W. of Winnipeg and 560 m. E. of Vancouver. It is situated amongst the beautiful scenery of the Rocky Mts. National Park and is a noted tourist resort.

Banfishire, maritime co., N.E. Scotland, bounded on the N. by Moray Firth, on the E. and S. by Aberdeen shire, and on the W. by the counties of Inverness and Elgin. The surface in the S. is mountainous, the land in the N. being flatter and more fertile. Partly in the co. are Cairngorm Mt. (4085 ft.) and Ben Macdhui (4296 ft.). The chief rivs. are the Spey, Avon, and Deveron. The chief lochs are Loch Avon, Loch Builg, and Loch Cattle-breeding is the Etchachan. prin. rural industry. Other important industries are fishing and whisky distilling. The co. tn. is Banff. The other chief tns. are Portsoy, Cullen, Buckie, and Keith. Area, 633 sq. m. Pop. 61,000. Pictish remains are to be found at Rothiemay, Ballindalloch, Boharm. and

remains at Findlater, ar .

the scene of many strenuous conflicts between the Scots and Norse invaders. The co. returns one member to parliament.

Banffy, Desiderius, Baron (b. 1843). Hungarian statesman, was born at Klausenburg, Transylvania. ln 1892 he became president of the Lower House, and from 1895-99 was prime minister of Hungary. In 1903 he was again at the head of a radical

party and a leader in parliament.

Bang, Hermann Joachim, a Danish author. He was born in 1857, in the Is. of Seeland, and received his education at the Academy of Sorö and at Copenhagen. His novels include: Has blose Slägter, 1880; Fädra, 1883; Stille Existenser, 1886; Liv og Död, 1900; and Mikaël, 1903. He has also written critical works, as, for example, Realisme og Realister, 1879, and has contributed articles. and has contributed articles to various periodicals.

Bangalore, cap. of Mysore state, India, 216 m. by rail W. of Madras.

and 70 m. N.E. of Seringapatam. It embroidering and flowering of muslin. has a healthy climate, being situated over 3000 ft. above the sea-level, and is equipped with good drainage and an excellent water supply. a considerable European settlement, and quite a large number of the natives are Christians. It has cotton and other manufs. The fine botanical garden is worthy of note. The tn. was a favourite residence of Hyder Ali. It was captured by Lord Cornwallis

in 1791. Pop. 160,000. Banganapilli, or Banganapilly, a tn.

in Madras, British India, cap. of a small native state, 89 m. E. by N. of Bellary; pop. 32,000.

Bangar, a tn. in La Union prov., Luzon, Philippine Is., 17 m. from San Fernando. It produces alluvial gold, and agric. products such as telepage, rice actten etc. tobacco, rice, cotton, etc. Pop.

about 9000. Bange, Charles Timothée M. Ragon de, a Fr. officer, b. at Balignicourt, Aube, in 1833. He has distinguished himself by his organisation of the artillery system of the Fr. army, and by his invention of the cannon which is called after his name. He

became a colonel in 1880.

Bangka, see Banca. Bangkok, cap. of Siam, on Menam, 20 m. from its mouth. the older part of the city is built on rafts, but more civilised methods of townplanning have in recent years made rapid headway, and Bangkok is now supplied with good roads, an excellent tramway system, and many fine modern buildings, including the government offices, the arsenal, and the mint. The sanitation has greatly improved, though the death-rate is still high. Chinese form a large proportion of the pop., and with the Europeans, control its very extensive trade, 75 per cent. of which is with the British empire. The chief exports are rice, teak, cattle, and pepper, the prin. imports being textiles, machinery, tea, opium, bullion, and gold-leaf. There are four railway stations. The principle of its beautiful coloured. number of its beautifully coloured temples makes B. one of the most picturesque cities in the E. The area of the city is about 10 sq. m. 630,000.

Bangor: 1. Episcopal city, seaport, and municipal borough, Carnarvonshire, N. Wales, on the Menai Strait, 9 m. N.E. of Carnarvon. The chief trade is the export of slate from the famous Penrhyn quarries. The cruciform cathedral was hardly a credit to the tn. until restored by Sir Gilbert Scott (1869-80). The University College of N. Wales is situated here. Pop. 12,000. 2. Seaport and watering-place, on Belfast Lough, co. Down, Ireland, 12 m. E.N.E. of Belfast. Carries on

Pop. 6000. 3. City and co. seat, Penobscot co., Maine, U.S.A., on the Penobscot R. at its junction with the Kenduskeag stream. Has extensive manufs. of boots, shoes, and clothing, and is one of the chief lumber depots of the United States. Pop. 25,000.

Bangorian Controversy. famous dispute arose out of a sermon preached before George I. in 1717 by Bishop Hoadly of Bangor. In this sermon Hoadly denied the right of the Church to exercise authority over the conscience. The Lower House of Convocation was preparing to take steps against the author of these opinions, when it was prorogued by parliament for a period of some months. Amongst those who attacked Hoadly were Thomas Sherlock, then Dean of Chichester, Francis Hare, Dean of Worcester, and William Law.

Bangweolo, or Bemba, lake, Northern Rhodesia, 3700 ft. above the sealevel. Area of open water, about 1670 sq. m. in dry season. It is very shallow, and is said to be nowhere deeper than 15 ft. It was first discovered by Livingstone in 1868.

Banialuka is a tn. in Bosnia, situated on the R. Verbas, about 60 m. S.E. by E. from Novi. Noted as being a Roman Catholic bishopric, though the inhab, are fairly equally divided between Mohammedans and Chris-tians. It is also the seat of a Greek metropolitan. Pop. 14,000.

Banian Days. Originally a sailor's name for the days when meat was not served to the crew, this phrase has now come to be applied to any period of indifferent fooding. The expression

owes it

meatclass of Hindu merchants who were

Class of Hindu Increases who note a caste of the Valsya.

Banian Tree, see Banyan.

Banians, a class of Hindu traders, a caste of the Valsya, who, on religious principles, abstain from meat. estimated that there are over 3,000.000 of them scattered over various parts of Asia, chiefly in Bengal and Western India. They are noted for their shrewdness and business-like qualities. They carry on an extensive caravan trade with the interior of Asia, and engage in extensive money-lending transactions, charging high rates of interest.

Banias, a vil. in Palestine, on the site of the ruins of Paneas, afterwards changed by Philip the Tetrarch, son of Herod, to Cæsarca Philippi. It is situated near the sources of the Jordan, at the foot of the Anti-(Jebel Heish), Libanus the Hermon of Scripture, and is 45 m. W.S.W. of Damascus. The tn. came

novelist, poet, and dramatist, was a native of Kilkenny, where his father was farmer and trader in sporting accessories. He was educated at Kilkenny College, where he exhibited a fiscation of his property. In modecided talent for art and poetry. He recent times the word has come to mean expulsion from a country or mean expulsion from a cou of the Royal Dublin Society. He subsequently became a drawing-master in Kilkenny. At this time he suffered a serious breakdown in health owing to an unfortunate love affair. In 1820. after several years of ill-health and disappointment, he settled in Dublin, ultimately abandoning art for litera-In 1821 the production of his tragedy, Damon and Pythias, brought B. fame and money, and in 1822, he and his brother Michael set about the writing of a series of Irish tales on the lines of Scott's Waverley novels. Their Tales of the O'Hara Family (1st series, 1825) attained great popularity. His next novel, Boyne Water, not very favourably received, but he was more successful with The Nowlans (included in the O'Hara Tales). During the whole of his literary life B. suffered greatly from ill-health, and often from severe poverty. He was granted a civil list pension in 1836. B.'s descriptions of the life and habits of the Irish peasantry are wonderfully realistic, and in certain respects he is the superior even of Miss Edgeworth. Amongst his other works are the book of essays entitled Revelations of the Dead-Alive, the tragedies of Turgesius and Sylla, and the poem The Cell's Paradise. See Murray's Life of John Banim, 1857.

Banim, Michael (1796-1874), elder brother of John B., and joint-author of Tales of the O'Hara Family, was originally intended for the law, but was compelled to renounce his studies owing to his father getting into financial difficulties. He then devoted himself with much success to the improvement of his father's affairs, giving his spare time to literature, with such a good result as Crohoore of the Bill Hook, one of the best of the tales. Like his brother, he was the victim of ill-health, and in his latter the Dutch E. Indies, on the coast, stances. His was probably the greater that Connell, Bank Holidays, first estab. by Sir Bank Holidays, first estab. by Sir Bank Holidays, first estab. by Sir Bank Holidays, first estab.

into prominence during the time of the Crusades, about the 13th century, various significations of proclamawhen the castle of B. was built, the ruins of which may still be seen.

Banim, John (1798-1842), the Irish ment. In primitive society B. meant provided needs to be a pr the exclusion of an individual from the protection of the law and the benefits of society, a sentence of out-lawry which also involved the con-fiscation of his property. In more place in punishment for crime. In England banishment seems first to have been introduced as a punishment in judicial procedure in a statute of Elizabeth's reign, and in the form of transportation the practice received the sanction of English law until far on in the 19th century. It is still a punishment for political offences in Russia, Turkey, and the republics of Central and South America.

Banister, see BALUSTER. Banjaluka, a tn. of Bosnia on the Verbas. It is the see of a Roman Catholic bishop, and has many mosques. It is noted for its hot springs. Pop. 13,000.

Banjermassin, or Bandermassin, riv. in South-eastern Borneo. navigable for about 50 m. from the sea.

Banjermassing, or Banjermassin: 1. Dist., Dutch Borneo, intersected from N. to S. by mts., and watered by the Banjar and other rivs. Rice is grown, and the region also produces grown, and the region also produces gold, diamonds, gum, wax, spices, etc. The pop. is composed mostly of Dyaks. 2. Tn., cap. of Dutch Borneo, of the Martapura, near its junction with the Barito. B. is largely built on piles. There is an extensive trade in the products of the locality.

Banjo (a negro corruption of the word bandore, derived from Gk. pandoura, a musical instrument with three strings), a stringed musical instrument, played with the fingers, without frets to guide the stopping. It consists of a long neck, on which are the tuning-pegs, and a drum-like vellum body, and has from five to nine strings. It was introduced into America by the negroes. The pitch is one octave lower than the written notes.

Banka, or Meng-ka, a Chinese tn. on the Is. of Formosa. It is in a teagrowing dist., and its port is Tamsui. Pop. about 45,000.

share in the delightful Father Connell, while he was sole author of the following tales: The Croppy, The Ghost Hunter, The Mayor of Windgap, The are Easter Monday, Whit Monday, the Bil o' Writin', and The Town of the Gasades.

Builthment This town is desired. Strategy the 27th Christmas Layened. Banishment. This term is derived Sunday, the 27th, Christmas Day and

are Christmas Day, New Year's Day, and the first Mondays of May and August. On these days banks are closed, bills and notes due on such days becoming payable on the next day, except in the case of Christmas Day and Good Friday. Bills, etc., due on these two days are payable on the preceding day.

Bankipur, a tn. in India. situated in Bengal and adjacent to Patna.

Bank Note, see Banks.

Bankrupt, a person who declares. or by his conduct makes it manifest, or by his conduct makes it manifest, that he is unable to pay his debts and whose property is accordingly distributed among his creditors under the bankruptcy laws. In its original signification the term B. meant a trader who hid himself or did other acts tending to defraud his creditors. The term 'insolvent,' which in one sense connotes any person who is unable to pay his debts, in a more restricted sense meant a non-trader who sought the benefits of the Insolvency Acts. Since 1861, B. includes both traders and non-traders, and our whole modern law of bank-ruptcy applies indifferently to both. Insolvency now connotes the con-dition of a debtor who is unable to pay his debts but who has not been 'adjudged.' Bankruptcy legislation dates from the time of Henry VIII., when a statute was directed against fraudulent debtors, whether traders or not, and empowered the Lord Chancellor and certain other great officers of state to seize the property of the debtor and distribute it rateably among his creditors. The debtor, however, obtained no relief from his liabilities, and furthermore, it was considered fraudulent for a man to procure his own bankruptcy. procure his own dankfuptey. The reign of Elizabeth, applied to traders only. Under this act the Lord Chancellor was empowered to appoint commissioners in bankruptcy, in whom the property of a B. was vested, and who assigned it to persons by whom it was realised and distributed among the creditors. No provision No provision among the creditors. was made, however, for the discharge of the B: Later, in Anne's reign, the B. was able to obtain an order of discharge provided a specified number of creditors consented. A great on creations consened. A great number of other acts were passed from time to time, and ultimately consolidated and amended by the act of 1825, which introduced the principle of deeds of arrangement as an alternative to bankruptcy subject to very severe restrictions. In 1831

Good Friday. In Ireland March 17 from the Court of Chancery to the is also a B. H. In Scotland B. H. new court, and reserving to the Lord new court, and reserving to the Lord Chancellor only an appeal from the bankruptcy judges. Then came the Bankruptcy Act, 1861, which extended the law of bankruptcy to non-traders. In 1869 all the above statutes were repealed and a 'trustee,' in whom the property of the B. was to vest, was substituted for the old 'official assubstituted for the old official assignees. The present law of bank-ruptcy is regulated by the Bank-ruptcy Acts, 1883 and 1890, and the Rules made thereunder. The purpose of these acts is to secure that the property of a person who cannot pay his debts in full shall be divided rateably among his creditors, and that the debtor shall then be freed from his debts either absolutely or conditionally. According to the present law, proceedings may be instituted by the debtor or by the creditors: in the former case the bankruptcy is called voluntary, in the latter involuntary. The claim of the creditors must amount to £50. On the petition being presented, the property of the debtor is taken over by an official receiver, who is an officer of the Board of Trade, and the debtor must make a full statement of affairs on oath in public, after which the creditors hold a meeting to determine whether the debtor shall be adjudged B. or whether a composition can be arranged. Such a composition must be approved by three-fourths in value of the creditors, and must receive the sanction of court. If, however, the debtor is adjudged B., the creditors appoint a trustee to distribute his estate, under the supervision of a committee of inspection. The debtor is liable to imprisonment if he refuses is nable to imprisonment if he refuses to assist in the discovery of his property or conceals his goods from the trustee. After the distribution of his property among the creditors the B. may obtain a discharge from the court, but the discharge is withheld under certain conditions. 1. If he has not kept proper books within three years before bankruptcy; 2, has traded after knowledge of insolvency; 3, has lived extravagantly or specu-3, has lived extravagantly or speculated rashly: 4, has been previously B.; 5, has contracted debts without expectation of being able to pay them; 6, has given preference to any creditor within three months before bankruptcy. A B. is disqualified from holding public office, or from sitting in parliament, unless his bankruptcy is annulled on he obtains ruptcy is annulled, or he obtains a discharge with a certificate from court stating that his bankruptcy was due to misfortune. By the Bankruptcy Act of 1883 the procedure is simplified was constituted the Court of Bank-ruptcy, transferring the jurisdiction less than £300, when the official rejurisdiction was transferred by this Act from the Court of Bankruptey to the High Court of Justice; it also provided for persons dying insolvent, the administration of whose property could formerly only be dealt with by a suit in chancery.

The code of bankruptcy differs in Ireland from that in England, and is governed by the Bankruptcy Amendment Act of 1872, when imprisonment for debt was abolished. The estate is administered by an official assignee, administered by an official assignee, who acts in conjunction with an assignee chosen by the creditors. The Central Court of Bankruptey is at Dublin, and local courts have no jurisdiction except under the direction of the Central Court.

In Scotland a B. is liable to the distributing process, known as 'sequestration.' A 'notour B.' corresponds to a person who has compitted what

to a person who has committed what is called in England an act of bankruptcy. There is no separate court of bankruptcy, the jurisdiction being assigned to the sheriff of a co. or to the Bill Chamber of the Court of Session. The procedure closely re-sembles that in England. See also INSOLVENCY. Consult Williams, Law and Practice of Bankruptcy, 7th ed., 1898; Baldwin, Concise Treatise upon the Law of Bankruptcy, 8th ed., 1900.
Banks, John, was an attorney in London, but he left that profession to

become a writer for the stage. The seven tragedies which he left in print bear dates extending from 1677-96. He must have died at some time in the reign of Queen Anne. B. is one of those dramatists who have been despised by the critics for their literary faults; but whose works have given excellent scope to the skill of great actors, and have in their day been highly popular with the playgoing public. The Earl of Essex kept its place on the stage till the middle of the last century, when it was superseded by the plays of Jones and Brooke, who stole successively the best parts of it. the best parts of it.

Banks, Sir Joseph (1743 - 1820), naturalist and explorer, was born in London and educated at Harrow and Christ Church, Oxford. At quite an early age he evinced a passion for the study of botany, and at the university this tendency expanded itself into a keen interest in all branches of natural history. He was instrumental in getting botanical lectures added to the university curriculum. His father's death in 1761 leaving him very well off, he had ample opportunity of following his bent, and in 1766 he made a botanical expedition to New-foundland. From 1768-71 he accom-

ceiver becomes trustee, and there is panied Cook in his voyage round the no committee of inspection. The world on the Endeavour, which he had fitted out at his own expense. The journal kept by him at this time has proved an important source of in-formation. In 1772 he made a trip to the Hebrides and Iceland, and was instrumental in bringing to the general notice the marvels of Staffa. In 1778 he was elected president of the Royal Society, of which he had been a fellow since 1766. This office he held till his death. B. will be remembered less original contributions by his science than by the generous assistance which he was always ready to afford to those less fortunate than himself. Amongst those indebted to him for help were such distinguished men as Burckhardt and Mungo Park. He formed a valuable collection and library, which he bequeathed to the British Museum. In addition to various scientific articles, he wrote A Short Account of the Causes of the Diseases called the Blight, Mildew, and Rust, 1805; and Circumstances Relative to Merino Sheep, 1809. See Home's Life of Sir Joseph Banks (Hunterian Oration, 1882); Duncan's Short Life of Sir Joseph Banks, 1821; and Marden's Sir Joseph Banks, the

Father of Australia, 1909.

Banks, Nathaniel Prentiss (1816-94), American politician and general, was a native of Waltham in the state of Massachusetts. After being factory-worker and the editor of a local paper, he studied law and was admitted to the her. admitted to the bar. After a period of service in the Massachusetts legislature, he was in 1853 elected to Congress, where for some time he was Congress, where for some time he was speaker of the house. From 1857-59 he was governor of Massachusette, and later became president of the Illinois Central Railroad, which position he relinquished on the outbreak of the Civil War, when he joined the Federals. He held several commands, with warming agreement Mayney desired. with varying success. He was defeated by Jackson at Fort Royal and was later beaten at the battle of Cedar Mt. In 1863 he captured Port Hudson, but after his defeat at Sabine Cross-Roads in 1864 he was relieved of his command. He reentered Congress in the same year, and served for many years as chairman of the Committee on Foreign Relations. A mental disorder brought about his final retirement from public life in 1891. He was popularly known as 'the Bobbin Boy,' in

allusion to his early factory career.

Banks, Thomas (1735-1805), Eng.
sculptor, was a native of Lambeth.
Apprenticed at the age of fifteen to a wood-carver, he studied sculpture in the evenings under Scheemakers. He continued his studies at the Royal

travelling studentship and proceeded to Rome. He did not return to England until 1779, his marriage to Miss Wooton, a lady of considerable means, Wooton, a lady of considerable means, rendering him independent. In 1781 he proceeded to Russia, where he gained the favour of Catherine II., who purchased his 'Cupid catching a Butterfly' and 'Caractacus and his Family before Claudius.' He was elected a member of the Royal Academy in 1785. B.'s greatest success were with imprinctive subjects cess was with imaginative subjects.
Amongst his most notable sculptures are 'Achilles enraged for the Loss of Briseis' (Burlington House) and Thetis rising to comfort Achilles.'

Banks and Banking. The term bank' (derived from Fr. banque, a bank') is

money-changer's bench or table) is applied to various forms of establishments which deal with money, including not only those institutions to which it more strictly applies, dealt with in this article, but also the great merchant and financial houses, discount businesses, and the like; it has even been wrongly adopted by mere money - lending and unauthorised stock-broking businesses. Banks have been classified into 'banks of issue,' i.e. those which have the right to issue their own notes, and 'banks of deposit,' those which receive money from their customers. Another classification divides banks into 'private banks,' those whose capital is owned by a limited number of partners, in English law not more than ten, and 'joint-stock banks,' where the shares are owned by a corporate body. In discussing banking in general, the English custom and practice is here taken as exemplifying the system at perhaps its most highly developed and organised stage. For practical purposes the Bank of England is the colly England of the perhaps and the page. only Eng. bank of issue, and the notes of those banks which still preserve the right of issue are but rarely seen. The Bank of England notes are legal tender in England except at the bank itself. Though the banknote is of the greatest importance in regard to the reserves held against deposits by the banks and so ultimately in regard to the gold basis of our credit system, the cheque is the medium by which business transactions of every kind are now carried on. A bank, usually a joint stock company, and with capital found by its shareholders, receives the money of its customers, either on deposit, i.e. only to be withdrawn after certain notice, or on cur-

Academy, where, in 1770, he gained | The Bank of England allows no in-the gold medal. In 1772 he gained a terest on deposits. These deposits. terest on deposits. These deposits, whether on deposit or current accounts, are the bank's liabilities, which they must be prepared to meet with cash on demand, and though in theory the liabilities might all be drawn upon at one moment, the system is based on actual experience that except in times of panic they never are. Thus the accumulation of deposits can be used by the bank for its own profit in financing the business and trade of the country and ness and trade of the country, and expanding the credit on which it is built up. A glance at the yearly or half-yearly balance sheet of one of the great joint-stock banks will show the kind of business which is done by them. On the debit side will be found the paid up capital of its share-holders, i.e. the original working holders, i.e. the original working capital, the reserve fund, the accumucapital, the reserve fund, the accumulation of profits not paid out in dividends; then will follow the largest item, the deposit and current accounts of its customers, which form the bank's liabilities, and the profit and loss account. On the credit side comes first the cash: (1) Gold and notes in the tills, ready for the ordinary day to day drawings; these are normally small in amount, owing to the use of cheques; (2) cash held by the bank at the Bank of England, which, as the bankers' bank, is the centre of the English banking system. centre of the English banking system. centre of the English banking system. Cash held at the Bank of England appears as 'other deposits' in the weekly bank return. Next upon the credit side appears the item 'loans at call or short notice;' these are day to day or weekly advances made chiefly to the brokers of bills of exchange at a low rate of interest. The largest amount is found in the item 'bills discounted and advances.' Not only do the banks discount bills them. only do the banks discount bills them-selves, but they finance by advances the merchants who confine them-selves to that business; thus the banks play an important part in the supplying of credit to the trade and industry of the country, for it is the bill of exchange (q.v.) which is the prin. medium of the supply of credit.
Advances' also include the loans made by the bank to its customers, on securities of all kinds, from the large sums advanced to corporations, companies, bill-brokers, and discount houses, or to members of the Stock Exchange for dealings in shares, to the loans made to ordinary private persons on securities lodged with the bank or as overdrafts on personal security or guaranteed by a third perrent account, i.e. to be withdrawn on son. The value of the bank's premises demand, during business hours. On deposit accounts interest is allowed, on current accounts usually none. credit side of the balance sheet. An

will show that the deposit and current itself of the clearing-house. Similarly, accounts, its liabilities, amount to perhaps six or seven times that of the cash in hand or at the Bank of England, and the balance will be chiefly found in the sums lent either at call or short notice, on bills, or in other advances, and sound banking depends on these advances being promptly repaid and securities easily and at all times readily realisable in cash. bank has always to be prepared for a panic, and it is always faced by this problem: if too much is laid up in cash reserve against its liabilities, there will be so much less available for making its own profits and for the financing of trade and industry; if too little, at any moment it may be called on to pay more than it can command in cash at once, with the consequence of realising its securities at heavy loss or of even suspending payment. The cash reserves of a bank are, as we have seen, the gold and notes in its tills, and the reserve at the Bank of England, which is, in turn, a credit in the books of the bank, capable of being drawn on in gold or notes also. The ultimate reserve, therefore, is gold; for, as will be shown, the note issue of the Bank of shown, the now issue of the Bahr of England is restricted by law and depends on the gold held by it, except when the Bank Act is 'suspended.' A control is kept by the banks, therefore, on the expansion of credit by the the money market, so that some equilibrium is kept between their liabilities and their reserves (see Money Market). Of all the vast MONEY MARKET). Of all the vast business done by the banks, a very small proportion is actually carried on in gold or notes, for the com-mercial currency of England, and nowadays of the U.S.A., is the cheque. When A opens a deposit or current account at a bank, it is in nearly every case by means of a cheque, drawn in his favour by B on another bank against B's funds there; when A draws on his account to pay C, he again does so by a cheque, and C pays it into his account, and so on. The enormous amount of business done by The the interchange of cheques is carried through not by paying in or out of notes and gold, but by book-entries in the various banks through the 'clearing house' (q.v.). A's cheque to C on X bank is taken off his current clearing-house day by day balance all 'and the Banking Depts. of the Bank the cheques out and in against each of England. It could issue notes up other, and the differences are settled to £14,000,000, being the amount of between them by a corresponding its loans to the gov. at that date, this alteration in their accounts at the is the 'fiduciary' issue; above that Bank of England, which is their amount the bank must hold an

examination of a bank's balance sheet; common banker, and is not a member when a loan or an advance is made by a bank, it usually consists of an entry in the bank's books, giving a credit against which the person to whom it is given has the right to draw cheques Thus on a comparatively small capital of its own, with cash perhaps amounting to one-seventh of its liabilities, an estab. bank does its work of providing the readiest way of settling a vast volume of transactions, and of providing the credit necessary to finance these transactions with a currency which, though not actually paid in gold, is payable in gold. Some idea of the volume of business done can be gained from the fact that the annual amount dealt with at the London clearing-house reaches some sixteen clearing-nouse reaches some sixteen thousand millions. As the keeper of the gold reserve, on which ultimately this vast business is built, and as the bankers' bank, the central figure is the Bank of England, of which a short historical sketch is given below. The Bank of England is first of all the gov. bank, receiving all revenue payments, and paying the dividends, etc., to holders of gov. stock. It is the agent of the gov. in the financing of treasury and exchequer bills, and in other ways is the right hand of the gov. in the financial side of its ad-ministration. It is the only bank whose notes are legal tender, i.e. must be taken in payment of a debt. It is, be taken in payment of a debt. It is, for all practical purposes, now the only note-issuing bank in England. The Bank of England, or, to give its proper title, 'The Governor and the Company of the Bank of England,' is directed by a governor, a deputygovernor, and twenty-four directors forming the court, and no member must be connected with other banks. The governor holds office for two The governor holds office for two years, after serving two years as deputy. The Bank of England is regulated by the Bank Charter Act, 1844. The act limited the note issue of all other banks in England and in Scotland and Ireland, but allowed the last two to exceed this, on an equivalent of gold for every note in excess. The monopoly of note issue in London and the 65 m. radius, granted in 1826, was retained, and no new bank could obtain the right; the result has been that many banks have allowed their note-issuing rights to lapse on opening offices in London. account and transferred to C'saccount or from amalgamation with London at Y bank. The various banks at the banks. The act separated the Issuing

equivalent in gold coin or bullion. The fiduciary issue increased automatically by two-thirds of any lapsed issue of notes of other banks, and thus has been increased now to £18,450,000. The bank is obliged to

BANK RETURN

An account pursuant to the Act 7 and 8 Vict. cap. 32, for the week ending on Wednesday, the 9th day of October 1912:

Testre Department

		TOSOT TIE	CATATATEMY	
Notes issued	•	. £54,868,020	Government Debt Other Securities . Gold Coin and Bullion Silver Bullion	. £11,015,100 . 7,434,900 . 36,418,020

BANKING DEPARTMENT

DANAING DIMMINIMAL									
Proprietors' Capital			Government Securities		£13,338,084				
Rest		3,159,682	Other Securities .		32.855.496				
Public Deposits 1.		10,357,468	Notes		25,697,095				
Other Deposits .		45.298.171	Gold and Silver Coin		1,495,465				
Seven-day and other Bil	le				_,,				

£73.386.140

£54,868,020

£73.386.140

£54,868,020

By deducting the notes in the banking dept. from the notes issued in the issue dept., the notes in circulation can be ascertained; most of them are held in bankers' tills as their immediate day to day cash transac-tions require. The notes held by the Bank of England in their banking dept. are the first line of defence against their prin. liability, that of other deposits,' which include the other banks' reserve, figuring in their balance sheet as 'cash at the Bank of England.' This with the bullion and coin is the Bank of England's reserve. In time of panic the banks will naturally draw against their deposits, and the Bank of England, not having an unlimited note issue, has to appeal to the gov. to 'suspend the Bank Act.' This has only been done in 1847, 1857, and 1866, and only in 1857 has an actual excess of notes been issued. The item on the debit side of the banking dept. termed the 'rest' is the equivalent of the 'reserve' in other banking balance sheets, viz. the undivided surplus of profits; this is never allowed to fall below £3,000,000. The Bank of England 'rate,' termed the 'bank-rate,' is the official minimum rate. mum rate

above that

for money in the open money market; but if there is a shortness of cash, the tendency is for the open rate to equalise with the bank rate. further EXCHANGE and MONEY-Market.

Banker and customer.—The English law affecting the relations between banker and customer is that of debtor and creditor, as was definitely laid down in the House of Lords in Foley v. Hill, 1848, 2 H. of L. 28. The banker is not a trustee, responsible to the depositor for the way in which he uses his money, and the banker keeps what profit he may make with the money deposited. If the bank stops payment, the depositor ranks with the other creditors. If he has not used his account for six years and there has been no payment of interest or repayment by the bank of any part of the deposit or no acknowledgment in the meantime, the debt is statute-barred. A banker is obliged to honour a customer's cheques provided only that there are sufficient funds to his credit, and is liable for damages without proof of actual in-jury or loss if he dishonours cheques. This liability holds good only be-tween the banker and the drawce of the cheque, and the person in whose favour the dishonoured cheque has been drawn has no right against the banker. The banker's authority to pay money on cheques is ended by the customer's death, insanity, or bankruptcy, or by notice of an act of bankruptcy. A customer may by order revoke the authority to pay cheques or a particular cheque, but such order must be in explicit terms. A garnishee order against the funds of a customer at a bank attaches to all the funds, and a banker may not pay

¹ Including Exchequer, Savings Banks, Commissioners of National Debt, and Dividend Accounts.

judgment is exceeded by the funds. Valuables, such as plate, etc., de-posited by a customer for safe custody with a banker, are not in the same position as funds deposited. banker acts as a bailee, and they cannot be taken by the banker as set-off against a debt due from the customer, nor, in the case of the failure of the bank, do they rank with the bank's assets; the banker is liable for loss through negligence on his part, and they can be recovered from the banker after any lapse of time. The deposit of valuables for safe custody differs from the deposit of securities, for on these last the banker has a lien, which covers also all cheques and bills paid in for collection by the customer. The banker can retain all such against his customer's debt, and may realise the securities. This banker's lien can, of course, only be exercised where there is no agreement between him and the customer to the contrary, or where goods are deposited only for safe custody or money is paid in to meet particular bills. Further, a banker may not alter any system of dealing which has been recognised as holding good between him and the customer without due notice. If securities have been deposited as cover for a specific loan, the banker's lien terminates when the loan has been repaid. An overdraft or advance is arranged by agreement, and interest may be charged; a customer, drawing a cheque when there are not sufficient funds to meet it, makes an implied request for an overdraft, which the banker may refuse by dis-honouring it. Much of the law affecting banker and customer is that which relates to cheques, bills of exchange, and other negotiable instruments. Finally, a banker is bound to keep secret all matters relating to his customer's account, unless authorised to do so or compelled to do so by law. Sec Paret Law of Banking 1908, and Sec Thomas Hε

ets have been found in Babylonia and Assyria showing some of the functions of the modern banker, such as moneychanging, advances, and the like; we also know from the code of Ham-murabi that payments were made through a banker and by drafts against Deposits bearing interest, letters of credit, and other means of transferring credits from one place to

on any cheques drawn by the custespecially in Italy during the middle tomer, even if the amount of the ages, more or less continuously from ages, more or less continuously from very early times, it is now accepted that the first public 'bank,' properly so called, was the Banco di Rialto, estab. at Venice by acts of the senate in 1584 and 1587. In 1619 the Banco del Giro was founded; this became the only public bank in the state, and was long famous as the Bank of Venice. Banking in Venice developed out of the money-changers and private exchange bankers, who as early as 1318 seem to have taken deposits. and as far back as 1270 gave security to the state for the proper carrying on of their business. It was the failure of many of these deposit banks that led to the founding of the Rialto Bank as a public bank by the state. The Bank of Venice suspended payment several times owing to its loans to the state, and ceased after the Fr. invasion in 1797. An important early Italian Bank of St. George; this was a private bank of deposit; it was definitely founded in 1407, and by its advances to the republic practically dominated the state and managed the public funds. The Fr. appropriated its property in 1800. The bank had a much earlier history, dating back to 1200, as a merchant and financial company, and is interesting as the first example of a body of shareholders whose liabilities were limited to their shares. The banks mentioned above were 'deposit' banks, receiving cash and paying it out on demand, and developed out of the business of the dealers in foreign exchanges. Another class of early banks were those which class of early banks were those which remained, at any rate principally, as exchange banks, of the utmost importance in the days when there was a large quantity of debased and clipped coin in circulation. Of these exchange banks the Bank of Amsterdam, founded 1609, lasted till 1820, and the Bank of Hamburg, 1619 till 1872 are the most famous. Their 1873, are the most famous. Their business lay 'in the assistance of commerce not by loans but by the local manufacture, so to speak, of an international currency ' (Palgrave. Notes on Banking). This currency was bank money. Merchants brought coin or bullion to deposit, and were credited with the real intrinsic value: their credit was in 'bank money, which they could draw on to meet their requirements. The income of the bank was gained from the small charges for such transfers in the another were also known in ancient books of the bank as were made Greece and Rome. The Chinese are from one merchant to another to said to have had a very early paper meet their dealings. There is a good currency about A.D. 800. But though account of the working of the Bank it is possible to trace the evolution of Amsterdam in Adam Smith's various functions of modern banking, Wealth of Nations, iv. ch. iii. The

next great step in advance was the laws against usury, still further the were backed by a general confidence in the bank issuing them, they would circulate as cash, and thus create a great expansion of credit and business with an economy of actual metal currency. The invention of the bank note, apart, that is, from the Chinese and development of modern banking will be more conveniently discussed with the more conveniently discussed in the following sections dealing with different countries. See C. A. Conant, History of Banking in all leading Nations, 4 vols.; ibid. History of Modern Banks of Issue.

English banking and the Bank of England.—The rise of banking in England has often been dated from the scizure by Charles I. in 1640 of the bullion deposited in the Tower of London by the city merchants. Though it was returned to them, for the future they deposited it for safety with the goldsmiths, who not only did a great business in money-changing, but were also profitably employed in taking charge of rents and money on deposit from the country gentlemen, granting interest thereon. The gold-smiths had begun taking deposits in James I.'s reign, but the great development of their business dates from the Civil War. They gave receipts for the money deposited, and these receipts, known as 'goldsmiths' notes' the earliest form of hank-notes. notes,' the earliest form of bank-note in England, circulated even more freely than coin, and large transac-tions were carried out by their means as late as 1696. During the Protectorate the goldsmiths were of great assistance in financing the gov., and after the Restoration they more and more became lenders to Charles II., and may be said to have had nearly all the state revenues in pawn, receiving as much as 12 per cent. or over, and paying less than half that rate to their creditors whose deposits they used. In 1672 came the surgary. they used. In 1672 came the suspension of exchequer payments, a declara-tion of national bankruptcy which brought ruin not only to the gold-smiths, to whom the gov. owed smiths, to whom the gov. owed \$1,300,000, but also to their depositors. The successful example of the Dutch banks, the demand for better security for deposits, a correspondingly safer form of paper currency than the goldsmiths' notes, together with a general lowering of the exorbitant rates of interest, abored in spite of the still existing

appearance of the bank-note, i.e. a political necessities of the gov. in the promise to pay in coin made by the matter of loans, all these factors conbank which issued it. If these notes tributed to the demand for the estabtributed to the demand for the establishment of a properly regulated bank, a definite banking system, and the end of the goldsmiths. It is interesting to notice that three great private banks, Child's, Martin's, and Hoare's Banks, still carrying on business in the city of London, are descended paper money already alluded to, is from firms of goldsmiths mentioned due to Palmstruck, who founded the Bank of Sweden (Riksbank) in 1656; Smith's Bank at Nottingham claims the first bank-note was issued from the bank in 1658. The further history now amalgamated with the Union of London Bank, under the style of the Union of London and Smith's Bank. Other early banks, now amalgamated with other firms, are the Bristol Old Bank, 1750, and the Hull Old Bank, 1754. Valuable and interesting information as to the goldsmiths' ancearly banking in England will I found in F. G. Hilton Price's Hard Lorden 1876. book of London Bankers, 1876. The Grasshopper in Lombard -The Grasshopper in Lombard
by J. Biddulph Martin, 1892. 6,140
of England: The proposal English
foundation of the bank cabetween
William Paterson (q.v.), Mic. debtor
frey, and other London mely laid
lace in 1694, by Act of P. The
the charter being granted to shield to
the charter being granted to shield to
and Company of the Ban zer keeps
land. Sir John Houblon with the
governor, with Michael with the
deputy-governor, and a ks with
was carried on in Grocers' has not
was carried on in Grocers' and
1732, when the bank moy ars and
present site at the corner of of any present site at the corner of interest present site at the corner of interest needle Street, by the Royal E of any the present building, designed the debt part of the 19th century. The bliged holders of the corporation cap pro-subscribe £1.200,000, which ficient form their sole capital, and while for taken as a loan to the governal intorm their sole capital, and we're the taken as a loan to the gov. and incent, with £4000 a year for y beneated the first part of the sole to the first part of the sole to the first part of the loan to the government of the government exchange, and to issue notes up a mount of the loan; it was installowed to deal in pawned goods at merchandise, a privilege apparent not exercised. The restoration of the coinage, the attempt to found a rival land bank, and the gov.'s pressing need for money, led to the extension of the bank's privileges and capital by the acts of 1697 and 1709, especi-ally in the strengthening of its monopoly, and interest was reduced to 6 per cent. No bank, whose mem bers consisted of more than six, was allowed in England to borrow or take charged in spite of the still existing up money on its bills or notes payable

on demand. sufficient protection against competition, as at that time no bank could, it was supposed, do business without the power of issuing notes. No joint-stock banks were, in fact, founded. In 1722 the bank's reserve, called the 'rest,' was estab. In 1750 the rate of interest on the debt was converted to 3 per cent., the debt to the bank amounting then to over £11,000,000, and in $175\overline{1}$ the bank was given the administration and management of the national debt, which it holds to the present day. Further renewals of the charter were made in 1764 and 1781. From the attack on the bank during the Gordon riots in 1780 dates the protection of the premises by a military guard. In 1795 the first issue of £5 notes was made, and later, for a period, £1 notes. In 1797 cash payments vere suspended by the Bank Restric-on Act, owing to the general drain of £1 notes. 6d and financial strain of the war; the bank's notes were thus made and cally legal tender. The Bullion where thee Report was issued in 1810 safe cuited by parliament, and cash meet 15 were not resumed till 1821. banker issue of notes by the small dealing 'rivate banks, and the conholding tres, led to the Act of 1826, customer wed joint-stock banks, i.e. securities note of partners, and with cover for of issuing notes; but they lien terriliowed in London or within been repulsis. No notes were beneebeen rep dius. No notes were hence-is arranged in England below £5. terest mjoint-stock banks without drawinge were allowed within the sufficientius; it may be noticed that implied f cheques had by this time which t act as substitutes for notes, honourithe Bank of England notes ing bande legal tender. In 1844 relates el's great Bank Charter Act, and oin features of this Act, as Finally ag the bank's position at the secret day, have been stready given secret day, have been already given. tomer, also confined the right of note do so; those banks which possessed See Pht before 1844; as each lapsed Hartame absorbed, the limit of the

Geof England was to the extent been, thirds of the lapsed issue ex-shoed. The note-issuing powers of mo, banks is of little importance at & present day, and the Bank of England note is practically the only circulating note in England. In 1862 companies with liability limited to the amount of their shares were allowed, and in 1879 unlimited companies formed before the Act of 1862 were allowed to adopt limited liability.

This was thought to be England; F. Schuster, The Bank of tection against competi-England and the State.

Scotland .- The Bank of Scotland was founded in 1695 by Act of Parliament. It issued notes of £100 to £5, and in 1704 £1 notes. In 1727 a rival bank, the Royal Bank of Scotland. was granted a charter, and in 1746 the British Linen Bank. The private local banks ceased to exist by 1844, and Scotland shows an example of a small number of large banks with a highly developed system of branches, the number of offices to population being very high. The use of notes in business transactions is very great.
The Act of 1844 fixed a limit to the issue of notes, beyond which the banks must hold specie; the banks of issue, now eight in number, carry on the whole business of the country. Scottish banking history is marked by the disastrous failures of the Western Bank of Scotland, 1857, which failed for nearly £3,000,000, and the City of Glasgow Bank, 1878, which resulted in a total loss of over £6,000,000. Both these were unlimited liability companies. The Scottish banks, in addition to those named, are the Commercial, National, Union, North of Scotland, and Clydesdale Banks. See A. W. Kerr, Scottish Banking.

Ireland.—The first public bank, the Bank of Ireland, was founded by Act of Parliament in 1783, with great restrictions on rival banks: banks of issue were limited to six members; in 1821 this limitation was removed, but only outside a 50 m. radius from Dublin. In 1845 this restriction was withdrawn. There are now nine jointstock banks in Ireland, six being issuing banks. The regulations as to the issue is as in Scotland. All the six banks, with right of issue in 1844, still carry on business. The £1 bank-note, as in Scotland, circulates freely. The Irish banks issuing notes are the Bank of Ireland, Provincial, Northern, Belfast, National, Ulster: the Hibernian, Royal and Munster Banks have no note issue. See M. Dillon, History of Banking in Ireland

Banking crises and panics.—Since the Bank Act of 1844 there have been four banking panics and one financial crisis; the first, that of 1847, was the result of the great speculation in railways and a hazardous extension of credit. On Oct. 1 all advances on public securities were stopped, and the bank rate was 8 per cent. at the end of the month, when the coin and bullion reserve at the Bank of Eng-land fell to a little over £1,500,000. The Bank Act was suspended on the reationed to adopt infined habitis.

Practically all the joint-stock banks and fell to a little over £1,500,000.

availed themselves of this Act. See J. E. Thorold Rogers, The First Nine Years of the Bank of England; A. limit were actually issued, the panic Andréadès, History of the Bank of ceased, but there had been serious

England. Over-expansion credit and a great depletion of banking reserves led to the panic of 1857, when wild alarm prevailed, which continued even after the Bank Act was suspended on Nov. 12. On this occasion notes in excess of the limit were issued amounting to nearly £1,000,000, and the panic did not cease till the beginning of 1858. In 1866 the panic was marked by the historic failure of Overend, Gurney and Co.; it is stated that £1,000,000 in gold and notes was withdrawn from the Bank of England in one day; the rate was raised to 10 per cent. and the reserve fell to less than £500,000. The Bank Act was suspended, but no excess issue actually took place. The failures of the Scottish banks (see Scotland) and of the West of England Bank in 1878 caused great distress, but there was no general panic. In 1890 the failure of the great financial house of Baring (see Barnng, family) resulted in a serious crisis, but it had little effect outside London and those directly interested in S. American investments, and whatever danger there was of panic was averted by the action of the governor of the Bank of England, Mr. Lidderdale, in securing £3,000,000 in gold from the Bank of France, and in taking over the liabilities. It must be remembered that London is the centre of the money markets of the world, and consequently has to bear an interpational as well as a netional extension. national as well as a national strain. This fact was marked in the New York and American panic of 1907 and 1908, when the necessary gold importation to the United States was conducted through London.

France.—In 1716 the celebrated John Law estab. the first bank of issue, Banque Générale, styled in 1718 the Banque Royale, the king guaran-teeing the notes. It ceased to exist in 1721. Banks with limited issues carried on business, and there were attempts to reconstruct Law's bank. It was not till 1800 that Napoleon founded the Banque de France; at first its note issue was shared with departmental banks, which, however, were amalgamated with it in 1848, and it now is the sole issuing bank in the country. It has now over 400 the country. It has now over 400 branches, and does an enormous business in discounting bills and making advances. Its deposit business is not so large. The specie reserves of the Bank are very high, reaching £140,000,000 in gold and £40,000,000 in cold and £40,000,000 in silver, against a note circulation of nearly £200,000,000. The note issue

failures of banks in Liverpool, Man-hold any specific quantity of bullion chester, Nottingham, and the West against it. The bank can, to protect against it. The bank can, to protect its gold reserve, pay notes in silver; the bank rate is therefore very steady. The governor and the two deputy-governors are appointed by the State. Other large banks in France include the Comptoir d'Escompte, Crédit Lyonnais, 1863; Société Générale . . . du Commerce, 1864; the Crédit Foncier, 1852, chiefly deals in mortgages. There are a large number of provincial joint-stock banks.

Germany.-The Imperial Bank of Germany (Reichsbank) dates its present constitution from 1875; the Bank of Prussia was merged with it in 1876. It is very closely controlled by the gov.; the Imperial Chancellor appoints the president and council, and a proportion of its profits goes to the State. The right of uncovered note issue is limited by law, frequently ex-tended, but the bank is permitted to exceed the limit repayment of 5 per cent. on the surplus. The Banks of Saxony, Bavaria, Würtemberg, and Baden also possess the right of uncovered note issue, but the amount is small in comparison with that of the Reichsbank. An important feature is the 'clearing' system (Grio Verkehr) of the Imperial Bank; a debt to a customer of the bank can be paid by paying the money at any of the numerous branches; it will be with-out charge transferred to the credit of his account. It amounts to a money-order business without expense, and which are not used to the same extent as in England. The private and joint-stock banks in Germany are chiefly engaged in financing the country's trade and industries, and important banks, such as the Deutsche Bank, have taken a prominent place in foreign and international finances.

United States of America.—The Bank of N. America was founded by Congress in 1781, and obtained a charter from the state of Pennsylvania in 1782. It continued business till 1863. A federal bank of the iiii 1863. A federal bank of the U.S.A. was incorporated in 1791; its charter was not renewed in 1811, but owing to the financial straits of the various state banks, a second bank of the U.S.A. was estab. in 1816; it ceased in 1841. The state banks were regulated by varying legislation, and exchange naturally rose and fell according to the financial position of the different states. The close of the the different states. The close of the Civil War brought with it a necessity for some uniform system, and the national banks were estab. in 1865. The special feature of this system is nearly £200,000,000. The note issue the issue of notes secured upon is limited by law, but as long as the United States bonds deposited with limit is not exceeded, it has not to the treasury at Washington. No

other banks have the right to issue was the first president. notes, which, though not legal tender, are payable for all purposes except printing of 116 works, some of which customs duties. National banks are bound to keep reserves up to 25 per cent. of their deposits in the 'reserve' cities; in smaller centres this is reduced to 15 per cent. There are over 6000 national banks in the U.S.A. State banks, private banks, and the trust companies, which are, practi-cally speaking, banks, are not thus restricted. During the panic of 1893, 150 national banks suspended payment; the great panic of 1907 resulted in a suspension of all payments in currency. See W. G. Sumner, A History of Banking in the U.S.A., 1896; J. J. Knox, A History of Banking in the U.S.A., 1900. Other articles will be found under SAYINGS BANKS, LAND BANKS, PEOPLE'S BANKS, and PENNY BANKS.

Banksia, or honeysuckle-tree, is a genus of shrubs and trees of the order Proteaceæ, which are native to Australia, and receive their name from They grow in Sir Joseph Banks. sandy forest land or on rocks, and the flowers secrete a delicious honey; they do not produce good timber, but are cultivated in England for the dense heads of flowers. B. compar and B. serrala are tall trees, and B. grandis

reaches a height of 50 ft.

Banks' Islands, a group of is. N. of the New Hebrides, in the Pacific. There are

New Hebrides, in the Pacine. There are seventeen in all, the most important being Vanua Lava and Sauta Maria.

Bankura: 1. Dist. Bengal, India. Area, 2621 sq. m. Pop. 1,120,000 (mostly Hindus). 2. Chief tn. of foregoing, 90 m. N.W. of Calcutta, on the R. Dhalkisor. Silk and cotton manufs. and trade in rice and oil-seeds. Pop. 20,000.

Bann, the name of two rivs. in the Bann, the name of two rivs. In the N. of Ireland, known respectively as the Upper and Lower B. The Upper B., 25 m. long, rises in the Mourne Mts. and flows N.W. into Lough Neagh. The Lower B., 40 m. long, issues from the N.W. corner of the same lough and flows N.N.W. through Lovek Log in the the Albertia. Lough Beg into the Atlantic, 4 m. S.W. of Portrush, dividing the counties of Antrim and Londonderry.

Bannatyne Club, a literary club founded in Edinburgh in 1823 by Sir

Walter Scott and other Scottish anti-quaries, notably David Laing, of the Signet Library, the club's first and only sceretary, and Archibald Con-stable. It derived its name from George Bannatyne (1545-1609), the collector of the Scottish poetry of the 15th and 16th centuries. The club

During its career the club was responsible for the are much sought after by collectors.

Banner, a piece of drapery attached to the upper part of a pole or staff, generally hanging loose, but sometimes fixed in a slight framework of wood. To complete the idea, such piece of drapery must be regarded as in some way indicative of dignity, rank, or command, or as carried on some occasion with which ideas of dignity are connected. The size and form are mere accidents, as indeed is the material, though the drapery usually consists of some costly stuff, the most usual material being a soft silk called taffeta. Bs. are sometimes plain and of one uniform colour, but more usually ornamented with tassels and fringes, or decorated with some figure or device having reference to the person or community by whom it is raised, or to the occasion on which it is displayed. The term standard is usually applied to the prin. B. of an army, the national B., or a B. set up by some chief as a rallying point for his adherents. Colours is the name applied to the Bs. borne by particular regiments. A flag is a B. displayed on board a ship, especially as a signal. A pendant is a narrow flag with a long streaming tail, used to denote the vessel which carries it to be a national vessel, or man-of-war. This is some-times written pennon, and a small pendant is distinguished as a pennoncille or pensil. Ensign is a word formed on the idea of the B. displaying insignia, and formerly used where we now say colours. The officer now called an ensign was formerly the ensign-bearer. This name is now applied to the national colours carried over the stern of a ship. Streamer is a poetic word applied to all kinds of floating banners.

The national B. of England, that of her patron saint, St. George, consisting of a plain red cross upon a white ground, is a religious one; and whatever other Bs. were carried, this was, in former times, always foremost in the field. The Union-flag is formed by a combination with it of the crosses of St. Andrew and St. Patrick, the patron saints of Scotland and Ireland. The lions borne as the arms of England are the personal achievement or heraldie insignia of our kings, and appear from the time of Richard I. to have been always carried near the person of the sovereign when engaged in war.

The standard used in the 11th and 15th and 16th centuries. The club 12th centuries, being too large to be was formed for the printing of rare wielded by a single hand, was someworks relating to Scottish history, times fixed in a scaffold resting upon literature, and antiquities. It was a car drawn by oxen, while at the foot dissolved in 1861. Sir Walter Scott of the mast a priest celebrated mass 12th centuries, being too large to be

every day, and ten knights, attended of Rajputana, India; area, 1970 sq.m.; by as many trumpets, kept watch upon the scaffold night and day. Such 8 m. W. of the Mahi R.; pop. 8000. a cumbrous machine was used at the great battle of the Standard, in the reign of Stephen.

While their chief use was as rallying-points, Bs. were also employed as signals from a very early period. They were also carried by heralds, and the pennon-quarrée of a B. formed, as now, the drapery of a trumpet. Bs., with inscriptions or intelligible devices, have been used in all popular insurrections, as a ready means of acting upon the minds of a multitude. In all pageants, at tournaments, coronations, and funerals, they have been extensively used; and corporations and trading companies still employ them.

Banneret, a higher rank of English knighthood conferred for distinguished conduct in the field of battle. Part of the impressive ceremony consisted in the changing of the knight's pennon for a banner. The last knight-ban-neret proper was Sir John Smith, who

received the dignity from Charles I. for bravery at the battle of Edgehill.

Bannock (Gaelic bannach, a cake), a round cake, common in Scotland, made of pease or barley meal, or a mixture of the two. A mashlum B. is one made of mixed meal. It is baked on an iron plate known as a girdle.

Bannockburn (Gaelic, the stream of the white knoll), a vil. of Stirling-shire, Scotland, on the Bannock Burn, 3 m. S.E. of Stirling, the scene of the great battle, fought on June 24, 1314, in which 30,000 Scotch under Robert Bruce inflicted a crushing defeat on 100,000 Eng. under Edward II. The victory was largely due to Bruce's device of undermining the front of his position with pits covered with turf and rushes, into which the English cavalry were precipitated in helpless confusion. The Eng. are said to have lost 30,000 men. The Bore Stone is still shown on which Bruce is reputed to have set up his standard. B. is to-day quite a thriving place, with manufs.of tweeds, tartans, and carpets, Pop. 2500. and other industries.

Banns, see MARRIAGE. Banquette, in fortification, is a step formed of earth at the foot of the interior slope of a parapet (q.v.), extending along its whole length except where intervals are left for placing artillery to fire through the embrasures. Its height allows soldiers to fire over it, while it affords them almost complete protection.

Banshee, in Irish and West Highland folklore a guardian female fairy . that by shricks and wailings foretells the death of a member of the family . over whose fortunes she watches

Banswara, a hilly state in the S.W.

Bant, a com. of Oldenburg, Germany, in the dist. of Jever, near Wil-

helmshaven; pop. (1900) 16,126. Bantam, a decayed scaport of Java, 40 m. W. of Batavia, situated in, and at one time the seat of gov. of, the residency of the same name. The residency has an area of 3050 sq. m. and a pop. of over 700,000

Bantam Fowl, or Gallus bankiva, an ornamental variety of domestic fowl noted for its small size, silky appearance, brave and pugnacious disposition, which came originally from the It weighs little over a pound, and has fluffy legs; the hens are good layers, the flesh is good, and the eggs are of delicate flavour.

Bantayan, an is. belonging to the Visayas group, Philippines, in the prov. of Cuba, 60 m. from the tn. of Čebú. Area about 40 sq. m. pearl fisheries. Pop. about 13,300.

Banteng (Bos sondaicus), a species of wild ox, found in the Malay Penin-sula and Archipelago. It resembles the gaur (Bos saurus) of India, but itis of a lighter build, has a longer, sharper the gaur, it has no dewlap. The cow is bright dun in colour, with white short hair. The back rises to a hump behind the neck. inhabits jungles and forests, and is very ferocious. It has, however, sometimes been tamed by the Mainys and interbred with the zebu. Wallace, Malay Archipelago, 1869.

Banting System, a diet treatment advocated for the reduction of fat. The cure was first proposed Harvey, and was practised by William B. (1797-1878), an undertaker of St. James' Street, London. At the age of sixty-six, and scaling over 14 stone, he denied himself bread, butter, milk, sugar, beer, soup, potatoes, and beans, and took in their stead meat, fish, and dry toast. By this treatment he reduced his weight by over 3 stone and his girth round the waist by 12½ in. B. wrote a pamphlet on the subject, entitled, A Letter on Corpulence, addressed to the Public, 1863, which ran into many editions.

Bantry, a seaport and tourist resort, co. Cork, Ireland, at the head of B. Bay, 50 m. W.S.W. of Cork. It has fisheries and textile manufs. chief export is agric. produce. B. Bay, 25 m. long and 4-6 m. broad, affords fine and

battle (sent to tion an

Herbert, in which engagement Fr. gained the advantage. Pop. 3000. Bantu, a term embracing the Bantwa

widely - scattered African peoples speaking the languages of the B. group. They are distributed over S., S.W., and S.E. Africa, and include the Matabele and Mashonas in Rhodesia, the Zulus of Natal, the Bechuans (Basutos, etc.), the Damaras in the S.W., and further N. the Swahili. They are to be distinguished from the negroes of the Swahili. They are to be distinguished from the negroes of the Soudan to the N. and the Hottentots and Negritos in the S. The B. races came originally from N. and Central Africa. The word 'Bantu' (people) was first used in its present ethnorgraphical sense by Max Müller. graphical sense by Max Müller.

Bantwa, a state in the prov. of of 1,270,000.
Gujarat, India. Area, 208 sq. m.
The chief tn., B., is 80 m. N.W. of Java, cap
Diu. Pop. 8600.

Banville, Théodore Faullain de (1823-91), French poet, novelist, and playwright, was a native of Moulins. His first vol. of verse, Les Cariatides. 1842, stamped him as a romantic, and was followed by Les Stalactites, 1846; Odelettes, 1856; Odes funambulesques, 1857; Nouvelles odes funambulesques, 1869, and *Idylles prussiennes*, 1871, this last inspired by the Franco-Ger. His Traité de Poésie Française is a valuable work on French versification, of which he proved such a dexterous master. His delightful handling of rondeaux, rondels, and other mediæval forms of verse was the other medical rolls of versions as the starting-point of a notable revival in that kind of poetry. His play, Gringoire, has been played in England by Sir Henry Beerbohm-Tree. See his Mes Souvenirs, 1882.



BANYAN TREE

the mulberry, fig, and india-rubber tree. The B. is a sacred tree in India,

has an area of 2140 sq. ni., and a pop.

Banyuwangi, a seaport tn., E. coast of Java, cap. of dist. of same name.

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Banz, a small town situated in Bavaria, Southern Germany, nearly 4 m. S.W. from Lichtenfels, on the R. Main. Specially noted for its fine old castle, which originally was used as a monastery for the Benedictine monks.

Baobab, or Adansonia digitata, is a species of Bombacaceæ found Africa and Australia. It is one of the largest trees known, having an enormous trunk, sometimes 30 ft. thick. Various parts of the plant have different uses, the bark having a strong fibre and being the chief ingredient of a febrifuge, the fruit (called monkey-bread) consisting of a pleasant though acid pulp and a juice which makes a cooling beverage, the leaves being of use medicinally and for food.

Bapaume, a tn., France, dept. of Pas-de-Calais, 12 m. S. of Arras. On Banyan Tree, or Ficus indica, is a Pas-de-Calais, 12 m. S. of Arras. On species of Moracea, an order which Jan. 2 and 3, 1871, it was the scene of includes many well-known plants, as two fierce engagements between the Fr. and Germans, the former suffering a loss of over 2000 men. Pop. 3000.

Baphomet, the name of a mysterious idol with two heads, male and female, which the Templars were accused of worshipping in secret with licentious rites. The word seems to be a corruption of Mahomet.

Bapta, a genus of lepidopterous insects of the family Geometridæ. The species are among the thinbodied, day-flying, delicate moths with large wings. B. bimaculata and B. nunctata are both found near London: the former is white with two brown spots on the front edge of the anterior wings, while the latter has the tips of its anterior wings clouded with brown.

Baptanodon, a large ichthyosaurian, both amphibious and toothless, found in the Jurassic system of Wyoming. This fish-like reptile was from 9-11 ft. in length.

Baptism. The word itself is derived where it receives every care from the from the Gk. βαπτωμος, which signinatives; it grows on an erect plant, fies a ceremonial washing or purifica-.

tion, and is in turn derived from βαπτίζω, which signifies 'to dip. The ceremony is regarded as one of the sacraments of the Christian Church, and is a ceremony which consists of symbolic washing with water. The Christian Church refers it to the authority of Christ, who commanded its administration as part of His teaching. Many references may be found to it in the books of the N.T. The idea of a purification by washing with water, however, did not originate with the Christian Church. The Christians themselves recognised that this ceremony had formed an essential part of the religions of many of the ancients, and that the ritual of B. had been regarded as a purification for many sins. To give only one example, the Jews had regarded it as part of the ritual of the entrance of a proselyte into the Jewish Church that a formal purification should take place by B. A great controversy has always been in existence as to whether the sacrament of B. should be conferred only on adults who could profess their faith, or whether the sacrament could also be conferred on the children of Christians before they were able to answer and profess for themselves. The practice of the apostolic and early Christian Church was confined principally to the B. of adults, but probably this was due to the fact that the greater number of converts were adult proselytes from Judaism or heathen worship. The arguments brought to bear in favour of infant B. were principally that children had always occupied before the Christian era a recognised place in the Church, and that the new dis-pensation did not abolish that position. Also that from the words of Christ Himself it was obvious that children occupied a position in the Christian Church, and that B. of infants would occupy the same position as the rite of circumcision had in the Jewish ritual. On the other hand it was argued that there was no definite command or statement that infant B. should take place, and great emphasis was laid on the fact that the apostolic B. was confined almost entirely to adults. It was also held that the ceremony of adult B. was the result of corruptions which crept into the Church during the later period of the early Christian Church. No absolute historical proof could be brought forward by either side. It is, how-ever, certain that for some very con-siderable time during the days of the early Christian Church, the ceremony of B. was confined almost entirely to adults, the age at which most Bs. took place being about thirty. In many cases it was much later, this

being due to the fact that sin committed after B. was regarded as a sinagainst the Holy Spirit and unforgivable, therefore in many cases B. was deferred until death was felt to be near. The case of the Emperor Constantine may be taken as an example of this. Amongst the early fathers also there was considerable difference in the opinions expressed on the question of infant B. However, by the 2nd century it had crept into a fair part of the Christian Church, and by the 5th century was an established doctrine of the Church. The Roman Catholic and some of the Protestant churches recognise the rite of infant B., while, on the other hand, it was always feebly opposed by small sects during the pre-Reformation days and has been strongly opposed by a section of the Protestant Church since the Reformation. Another great controversy has ranged around the method employed in B. The methods adopted are two, immersion and aspersion. From irrefutable evidence we know that the second method was adopted in the very early days of the Church, but on the other hand, from many authorities the advocates of immersion are able to claim that immersion is the only true B. Advocates of immer-sion are without exception opponents of infant B., and while the upholders of aspersion recognise the validity of B. by immersion, the immersionists do no of B.

of B. has ra Chris

able but that the ordinary method of B. has been by immersion. This question was one of the great separative forces in the quarrel between the Eastern and Western Churches, and although the Western Church ultimately adopted definitely the ceremony of aspersion for a considerable time, B. by immersion was the general method throughout Western Europe. The rite of B. was accompanied in the early Church, and is still in the Rom. and Oriental Churches, by a number of other ceremonies and forms. Most of these ceremonies, such as the signing of the cross on the infant's head, have been rejected by the Protestant Church, but the latter is retained by the Church of England. Amongst some sects there still exists the ceremony of the B. of the dead. The ceremony of giving a name during B. apparently crept in from the Jewish use at the rite of circumcision.

Baptist, John Gaspar, a painter, was a native of Antwerp, and a pupil of Boschaert. He came to England during the civil wars, and served in Lambert's army; but, after the Restoration, returned to his original tained by the Cathari and the Albi-profession, and was much employed genses. To trace the beginnings of by Sir Peter Lely in painting his draperies and backgrounds. He worked occasionally also for Kneller original talent, and made designs for tapestries which evince considerable skill in drawing. There is a portrait of Charles II. in St. Bartholomew's Hospital by this artist. He d. in 1691.

Baptiste, Jean Baptiste Monnoyer (or Monoyer), see MONNOYER. Baptistery, an ancient building, in which Christians performed the ceremony of baptism. The most celebrated existing Bs. are those of Rome, Florence, and Pisa; the most anct. is the B. of S. Giovanni in Fonte, near the church of S. Giovanni Laterano at Rome, commonly said to have been erected by Constantine the Great. The plan of this building is an octagon, with a small portico at the entrance; the interior is decorated with eight most beautiful porphyry columns, the finest of the kind in Rome. The diameter of this structure is about 75 ft. The B. of Florence, which is octangular, with a diameter of about 100 ft. 100 ft., stands opposite to the prin. entrance of the cathedral. The three great bronze doors are celebrated for the beauty of their bas-reliefs, and for the marble and bronze figures above them. The B. of Pisa, erected between the years 1152 and 1160 by Diotisalvi. is a singular design. The plan is cir-cular, with a diameter of 116 ft.; the building is raised on three steps, and surmounted with a dome in the shape of a pear. The external elevation is divided into three stories.

The multangular edifices placed at the sides of cathedrals, which are called chapter-houses, are very similar in plan to the ancient B. It is possible that they were originally

used for that purpose.

Baptists, a body of Christians who differ from other denominations in regard to the views which they hold concerning baptism. The distinctive view of the B. is that only believers should be baptised, and their method of baptism is also distinctive. viz. by immersion. The Pædobantists, however, recognise the efficacy of baptism by immersion, and this method is still at the present day practised by a large portion of the infant-baptising Christian Church.

The modern B. distinguish themselves from the Anabaptists (who are almost extinct) and reject any con-nection with them. They have their doctrines upon apostles and the

that throughout

the modern Baptist Church, however, and to separate this church from the Anabaptists, we come to the reign of and Riley. He was not without James I. and to the work of John Smyth. John Smyth was originally an ordained minister of the English Church who broke away from that church and fied to Holland. Here he fell under Mennonite teaching, and after severing his connection with the Independents, whom he had joined, he issued a confession of faith for the first Eng. Baptist Church ' of English people remaining in Amsterdam in Holland. This declaration of faith definitely laid down the two main doctrines of the Baptist Church, 'to receive all their members by baptism upon the confession of their faith and sins, and that 'baptism in no wise appertaineth to infants.' Smyth died in Holland, but his chief follower came to England in 1612, the year of Smyth's death, and estab. his little church in Newgate. This was the origin of the 'General' Baptist denomination in Great Britain. The GeneralBaptist denomination strongly repudiated the Calvinistic doctrines. holding equally strongly to the doctrines of the Arminians, and maintaining the doctrine of universal re-demption. The beginning of the Particular Baptist Church in Eng-land may be traced to the Jacob Church in Southwark, and its foundation may be approximately dated as taking place in the year 11633. Of this Jacob Church the famous Praise God Barbon was a member. The Particular Baptist Church was the direct offshoot of the Independents, and was therefore naturally Calvinistic in doctrine. Both sections of the Baptist Church suffered persecution during the reign of Charles II., but the pass-ing of the Toleration Act of 1689 gave liberty of worship and freedom from persecution to the B. together with all other Dissenters. The B. continued in this divided state for some very considerable time—the Arminian section. who held the doctrine of a general redemption, being known General B., and the Calvinistic section, who held the doctrine of a particular redemption, being known as the Particular B. A schism took place towards the end of the 18th century in the ranks of the General B., and a General Baptist New Connection was formed, the old connection being Unitarian. The names General and Particular B. gave rise to the impression that the General B. were those who admitted to their communion members who professed Christian Church during the mediæval faith in Christ but did not agree with period their doctrines were main-their views on baptism, and Parti-

cular as those who clung jealously to of B. was formed here in 1768. their own_doctrines and refused ad- | Pop. 11.000. mission. This idea, however, is entirely wrong, the names applied respectively to convey that idea being open B. and strict B. In 1891 the two sections of the B. were united together into one body, known as the Baptist Union of Great Britain and Ireland. This union was due principally to the efforts of the Rev. John The method of church gov. Clifford. is congregational, the officers of the church being the pastor, the deacons, and evangelists. Each church is selfchuren being and evangelists. Each churen is some governing, and is subject to no exposure at all. The B. have a magnificent missionary association, and also a number of colleges for the training of young men for the ministry. These seminaries are scattered throughout the country, and are the means of doing very good work. At the present day the B. have members in every part of the world in which white men are found, and their numbers are increasing annually. In the U.S.A. there are over 6,000,000 B., and the total number of churches possessed by the B. nowadays is nearly 100,000 with a total number of members that is nearly 9,000,000.

Bar: 1. In geography, a shoa! of sand, gravel, or earth formed at the mouth of a riv., where the force of the stream is so checked by the sea water as to allow the mud, etc., suspended in the riv. water to settle. Under such conditions navigation becomes diffi-cult, and must be assisted by dredging. 2. In music, the perpendicular line drawn across the lines of the stave to divide the music into equal portions and regulate the accent. The portion between two Bs. is frequently but incorrectly referred to as a B. 3. In heraldry, an ordinary in the form of the fesse, from which it differs by its narrowness and by its position in various parts of the shield, position in various parts of the sined, the fesse being confined to a single place. It has two diminutives, the closet and the barrulet, one-half and one-fourth of its width respectively.

4. In law, the term B.Ehas various significations. It is used to denote collectively those members of the legal profession who have the right to plead on behalf of suitors. It is also applied to the enclosed space in a court of justice where such members of the profession may plead, and to the prisoner's dock. A peremptory exception sufficient tostop a plaintiff's action either temporarily or permanently is also termed a B.

Bar (formerly Rov), a tn., Podolia, Russia, 50 m. N.E. of Kaminetz, on the Roy, an affluent of the Bug. anti-Russian conspiracy of the Polish nobles, known as the Confederation

Bar, Trial at, a form of trial, in Eng. legal procedure, before a full bench of judges. It was the usual mode of trial prior to the writ of nisi prius (Statute of Westminster, 1285), and is now the only survival of the old procedure, Such a trial takes place in the King's Bench Div. before a bench of judges and only in cases of great importance, or when demanded on behalf of the crown by the attorney-general. The trial of Colonel Arthur Lynch for high treason, 1904, and the hearing of the petition of right, 1905, to decide the responsibility of the British government for claims against the Transyaal Republic for acts done by it before or during the S. African War, took

Bar Council, or, more fully, the General Council of the Bar,' is the accredited representative body of the Eng. Bar: its functions are to act in a consultative and advisory capacity, dealing with all matters affecting the profession, such as the proposal and criticism of legal reforms, matters of practice, conduct, etiquette, etc. The body consists of the attorney-general and solicitor-general for the time being, the ex-attorney and solicitorgenerals, together with forty-eight selected members of the Bar, not less than twelve 'inner' barristers (King's Counsel) and not less than twenty - four 'outer' barristers twenty four outer barristers (juniors). The General Council was estab. in 1895, and replaced the Bar Committee, established 1883.

Baraba, Siberian animmense steppe, in the govs. of Tomsk and Tobolsk, between the rivs. Obi and Irtish, estimated to occupy an area of 100,000 sq. m. It is marshes and salt lakes. It is covered with

Barabanki, a dist. in the United Provs., N. India. It is a marshy plain traversed by the rivs. Gogra and Gumti. Area about 1703 sq. m. The soil is fertile, and wheat, rice, and grain is grown to a considerable extent. Pop. 1,180,000. The cap. is Nawabgunj, also known as B., which is 15 m. E. of Lucknow, and has a pop. of 15,000.

Barabas, or Barabas (Aram., son of the father), the name of a robber mentioned in the N.T. who was released instead of Christ by Pontius Pilate at the desire of the Jews.

Barabinza Steppe, sec & Baraba

STEPPE.
Baraboo, the co. seat of Sauk co., Wisconsin, U.S.A., on the B. riv., and on the Chicago and North-Western Railroad, 37 m. N.W. of Madison. It

, above the sea. railroad-shops. (1905) 5835.

Barabra, or Berabera, the name given by the modern Egyptians to a people of Lower Nubia, who call themselves Kenouz. The country occupied by the Kenouz extends along the Nile, between the cataract of Wady Halfa and that of Assouan. The B. or Kenouz are said by Champollion and others to resemble in teatures the people represented in the anct. Egyptian sculptures. (Balbi, Géogr.). See NUBIA.

Baracoa, a scaport at the E. end of Cuba. The cap. of theisland from 1512-14, it is now the centre of the banana and cocoanut export trade. Pop. 2900.

Barada, a riv. of Syria, which rises in the Antilibanus; at Damascus it divides into two branches, the one flowing N. being the Pharpar, now called Awai. The other branch, the main B., is supposed to be the Abana of anct. times, called by the Greeks Chrysorrhoas. It waters the gardens of Damascus, and finally empties itself into the Lake Bahret-el-Ateibeh.

Baraguay d'Hilliers, Achille, Comte (1795-1878), son of Louis Baraguay d'Hilliers, a marshal of France, was born at Paris; was a soldier almost from childhood: had his left hand carried away by a cannon-ball at the battle of Leipzig. He took part in the Spanish and Algerian campaigns, and was promoted to the rank of lieutenant-general. He was sent on a tenant-general. mission to Rome by Louis, com-manded the Baltic expedition, took Bomarsund in 1854, and won the battle of Melejuana in 1859. He died at Amélie-les-Bains.

Baraguay d'Hilliers, Louis (1764-1812), a Fr. general, was born at Paris. He served under Crestine, and was arrested with him, but re-entered the army and distinguished himself under Bonaparte in Italy. He took part in the ill-fated Russian campaign, and having been made prisoner, when released was ordered by Napoleon to return under arrest. He died at Berlin

on his way back. Barahat, formerly cap. of the Raja of Gurwal, is situated on the N.W. bank of the Bhagecrettee, in Northern Hindustan, in 30° 45′ N. lat., and 78° 22′ E. long. This tn. suffered very severely in 1803 from an earthquake, in which in 1803 from an earthquake, in which 300 of the inhab, were killed. It was described in 1815 as having not a dozen houses standing in a properly habitable condition, and as being almost buried in a jungle of rank weeds; but it has since recovered something of its former importance wing to the automorphism in the owing to the numerous pilgrims who sacred source of the Ganges. Srinagar, donment and final dest now the largest place in the province, Halde; Ritter's Asia.)

and a fruit-canning factory, etc. Pop. is distant 48 m. N.N.W. from B. Pauri is the seat of administration of Gurwal.

Barahona y Soto (1500-90), Spanish poet, whom Cervantes praises highly in Don Quizole. He wrote a continuation of Ariosto's Orlando Furioso, the first part of which bears the title The Tears of Angelica. He also wrote satires, eclogues, epistles, etc.

Baralipton, see SYLLOGISM. Baranetz, Scythian or Tartarian lamb, is the woolly rhizome of Cibotium Barometz, a species of Cyath-

racese. See BAROMETZ.
Baranov, Baranof, or Sitka Is., the most important is. in the Alexander Archipelago, Alaska, U.S.A. It is about 100 m. long, and its greatest breadth is 25 m. Coal and deposits of placer-gold are found on it, and there are fisheries along the coast. The cap., Sitka, is on the N.W. coast, the pop. of which was estimated in 1905 to be 1150.

Barante, Baron Guillaume Prosper Brugière de (1782-1866), a Fr. historian and politician, was born at Riom. He is the author of a history of the Burgundian dukes, the excellence of which caused him to be elected a member of the French Academy. He died at Barante.

Baranya, a co. of Hungary, lying between the Danube and the Drave. Area, 1982 sq. m. Pop. 322,000. To the E. stretch the Szöllös, a range of heights between Monostar and the Danube. The soil is very fertile; the greater part of the land is cultivated as vineyards, while some is used as arable land. Wheat, grain, tobacco, fruits, and vegetables are grown. The cap. is Fünfkirchen (Pécs).

Barasat, a tn. in Bengal,

from Calentta; pop. about 10,000.

Baras Khotun, or Bars Khotan, the
City of the Tigers, formerly a large
tn. on the banks of the Kherlon, in the country of the Mongols: the ruins of the tn. lie, according to Father Gerbillon, the only European who ever visited them, in 48° N. lat. and 113° 42′ E. long. When this traveller passed the riv. near these ruins, they consisted of extensive remains of mud walls, and two pyramids in a state of decay. After the Moguls had been defeated and expelled from China, Toghon Timur, the Mogul emperor, built this tn. as the future seat of the empire, and he died there in 1370. At that time it was an exten-sive tn., nearly 7 m. in circumference. Nothing certain is known respecting its destruction. Timur's son transferred the seat of the empire to the anct. tn. of Karakorum, farther to the W.; and this circumstance was used it as a starting point for the probably the chief cause of its abandonment and final destruction.

Barataria (Spanish barato, cheap): 1. The so-called is. in Don Quixote (pt. ii. ch. 42-53) over which Sancho Panza was appointed governor. 2. A bay on the W. side of the Mississippi Delta, which the notorious Jean Lafitte (1780-1826) and his band of pirates, smugglers, and slaves made their headquarters. Their band was broken up by Commander D. T. Pat-terson, of the United States Navy, 1815. See vol. x. of The Magazine of American History (New York, 1885). 3. The imaginary kingdom in the Gondoliers, by Gilbert and Sullivan (1889).

Baratier, Jean Philippe (1721-40), a precocious boy genius, born at Schwabach, near Nuremburg, was the son of Francis B., pastor of the Fr. Protestant church at Schwabach. Before he was five years old he could speak Lat., Fr., and Ger., and could read Gk. At the age of six he began a three years' course of Hebrew study, three years' course of Heorew study, reading with great avidity the books of the Cabbalists, Talmudists, commentators, etc. At nine he collected materials for a dictionary of rare Hebrew and Chaldaic words, with philological notes, and about two years later translated into Fr. from the Hebrew Benjamin of Tudela's Hissermium to which he added eight dissertations. He took his M.A. at Halle at the age of fourteen and was received into the Royal Academy at Berlin. He then studied law as a matter of duty, after which he turned to history, philology, and antiquities. He began a History of the Three Years' War, a History of the Heresies of the Anti-Trinitarians, and an Inquiry concerning Egyptian Antiquities, but he died before he reached the age of twenty. His life was written by Mr. Formey (Halle, 1741). Baratieri, Oreste (1841-1901), an

Italian general, born at Condino, in the of Eritrea, in Africa, 1891, where he adopted an aggressive policy, and, advancing into the interior, captured Kassala, 1894. In the following year he twice defeated Ras Mangasha, but was put to rout with great loss of life to his men by the army of Menelek near Adowa, 1896. He was tried before a court-martial and was cen-sured, 1897; he left the army the same year, and published his defence, Memorie d'Africa, 1892-6 (1897).

Baratynski, Eugène Abramovitch (1792-1845), a Russian poet. He at first entered the military service, but guitted the army in order to devote himself to poetry. He was considered by his friend Pouchkine to be the best elegiac poet of Russia. He died at Naples.

Barava, Barawa, or Brava, a seaport of Somaliland, E. Africa. Pop. about 4000.

Barb, the name of a fine breed of horses, reared by the Moors of Barbary and Morocco and introduced by them into Spain. They are not remarkable for beauty or symmetry, but their speed, patience, and endurance is unrivalled. The most cele brated horse of this breed is 'Godol. durance is unryaned. The most cele-brated horse of this breed is 'Godol-phin Barb,' which belonged to the Duke of Leeds (of the Godolphin family), and died in Dec. 1753, at the age of twenty-nine. Nearly every Eng. racehorse of note has a strain of the blood of this animal.

Barbacan, see Barbican. Barbacena, a tn. Brazil, in the state of Minas Geraes, on the W. slope of the Serra Mantiqueira, 130 m. N.W. by N. of Rio de Janeiro. Elevation about 3700 ft. above the sea. Pop. 6000.

Barbacoas, a tn. in the dept. of Cauca, S.W. of Colombia, 140 m. N. by E. of Jinto, on the Telembi, a trib. of the Patia, and navigable from the sea. Pop. 6000.

Barbados, or Barbadoes, is the most easterly of the W. India Is.; it is 21 m. in length and about 14 m. in breadth. Its area is 106,470 ac., of which practically all that is not occupied by buildings is under cultivation. Bridge-town is the cap., situated in lat. 130° 5′ N., and long. 59° 41′ W. The time of its discovery is not definitely known, but it is first mentioned in 1518, and was occupied by the British in 1625. The island is low-lying, with a broken surface, the highest point, Mt. Hillaby, reaching 1145 ft. There are no forests on it now, and few rivers; it is very highly cultivated, sugar being the chief product. The island is divided into eleven Church of England parishes, and is the see of the Bishop of the Windward Isles. The climate is as a rule very warm, though Tyrol. He served under Garibaldi in the warmth is moderated by the N.E. Sicily, 1860; was appointed governor trade winds, particularly from Jan. to May. The island is well furnished with such conveniences as trams, a railway, telephones, etc. It has an execuway, despinors, etc. It has an execu-tive and legislative council and a House of Assembly. The old founda-tion made a liberal provision for education, which is supplemented by an annual vote. B. is the trade must for the Windward Isles, and the headquarters of the British forces of the W. Indies. The chief exports are molasses, rum, and sugar: the chief imports rice, salt, corn, butter, and flour. The island is thickly populated, the pop. in 1901 being 196,000, or 1200 to the square mile.

Barbados Cherry is a name applied to the fruit of the Malphigia urens and M. glabra, the latter resembling closely a cherry in size and appearance,

Barbados Gooseberry, the fruit of the Pereskia aculeata, is an oval, yellow, edible fruit which grows on a W. Indian cactus. The plant on which it grows has thick, flat leaves with hard spines and the flowers are showy and white.

Barbados Leg, another name for

Elephantiasis Arabum.

Barbara, in formal logic, is the first word of a useful and ingenious set of mnemonic lines which form a clue to the moods and their process of reduction in all the four figures. Barbara · itself indicates that mood of the first figure which has all its propositions universal affirmatives. The lines are: Barbara, Celarent, Darii, Ferioque prioris:

Cesare, Camesties, Festino, Baroco,

secundæ:

Datisi. Tertia, Darapti, Disamis.Felapion,

Bocardo, Ferison, habet: Quarta insuper addit

Bramantip, Camenes, Dimaris. Fesapo. Fresison.

Barbara, St., a virgin martyr and saint of the Roman Catholic Church, who suffered martyrdom at Nicomedia in Bithynia in 240 or 306. She was converted to Christianity and her father on hearing this beheaded her. She is regarded as the patron saint of gunners and locksmiths. Festival Day December 4.

oBarbarea, a genus of perennial herbs of the order Crucifere, which are found in Europe, Asia, and America. B. vulgaris, yellow-rocket, winter-cress, or herb St. Barbara, grows in Britain as a handsome border-plant in gardens, and is used in spring salads. B. pracox, early

winter cress, is common to France, Britain, and N. America.

Barbarian (from Gk. βάρβαρος, Lat. barbarus). The word was introduced into the Greek tongue to describe all peoples that did not speak the language The word is probably onomatopætic, since it represents the strange babble of the foreign tongue to the more highly cultured Gk. the Gks. the whole world was divided merely into Hellenes and Bs. The Roms. were included by the Gks. in this general classification. At a later stage in the world's history, when Rome had risen to power, the word was used to signify such peoples that did not share the culture and civilisation of Rome. The whole of the world outside the boundaries of the empire was barbaric. Gradually the word ceased to denote only a difference of tongue, and came to mean a difference of manners, custom, and culture. To

but not in flavour. They are found in Rom. citizen the B., the man who the West Indies.

Barbados Gooseberry, the fruit of the manners and culture of Rome, and so the whole came to denote a lack of civilisation and culture. The tribes that were the essential cause of the downfall of Rome, were barbaric, and so we find historically that the B. attacks upon the city of Rome are always referred to. For a long time the Roman decadence had been bolstered up by the fresh infusions of barbaric vigour, and gradually the Bs. came to realise the power which they wielded, and when this realisation was fully accomplished, Rome The attacks of the Huns, the Goths, and the Vandals were but the prelude to the disintegration of the The greatest triumph may be said to have been won by the B. Odoacer, when in 476 he deposed the young emperor, and became to all intents and purposes king of Italy himself. He in turn was soon to be deposed and slain by the B. Theodoric. At this period nearly every part of the empire fell or was shortly to fall into the hands of the Bs. Spain owned the rule of the Visigoths, N. Africa of the Vandar, Italy of the Ostrogoths, and Gaul of the Franks. The vigour of the Bs. was too great to be held in check by the vanishing glory of the Rom. tradition. In the modern sense the word is applied almost exclusively with the meaning of lacking in culture and civilisation. Anything rough, savage, and uncouth is said to be barbaric, and the possessor of such qualities is held to be a barbarian.

Barbarossa

Barbarossa, see FREDERICK EMPEROR OF GERMANY.

Barbarossa Aroodje, see BARBA-

ROSSA, HOBUK.

Barbarossa, Horuk and Khair-ed-Din, the name of two Turkish corsairswho were the terror of the Mediterranean during the early part of the 16th century. Horuk, or Aroodje of Orooch, was born at Mitylene c. 1474. He served the emir of Tunis and be-came commander of his fleet. In 1515 he took Algiers, but three years laterthe Arabs secured the help of Spain. and Horuk was defeated and slain by General Gomarez, near Oran. brother, Khair - ed - Din, younger thereupon took command, and with help from the Sultan Solyman II., hetook possession of Algiers (1519) and Tunis (1533). In 1536 he was appointed chief admiral of the Turkish fleet, and carried on his piracy up and down the Mediterranean. both on land and at sea, plundering Port Mahon (Minorea), the Ionian Is. and Dalmatia and defeating the Christian. powers in several sea-fights. He obtained victories over the fleet of the cultured and daintily nourished Emperor Charles V. in the Gulf of.

Arta (1538), near Crete (1540), and the region. They were suppressed off Algiers (1541). In 1543 he gave finally at the conquest of Algiers by his aid to the French in the capture of ms and to the French in the capture of Nice, and made a triumphal return to Constantinople, where he died in 1546. See Rang and Denis, Histoire de Barberousse, 1837; La Gravière, Doria et Barberousse, 1886; and Lane-Poole and Kelley, The Slory of the Barbary Corsairs, 1891.

Barbaroux, Charles Jean Marie, a

Barbaroux, Charles Jean Marie, a Fr. politician, was born at Marseilles in 1767. In his early years he studied the physical sciences, but his ardent and impulsive nature caused him to throw in his lot with the revolutionary movement at its outset. He directed the movement in his native town, and was sent to Paris to bear a complaint to the legislative council against the director of his dept. He was present on 'Aug. 10,' and added to the success of the day by bringing up a battalion of volunteers. He allied himself with the chief of the Girondin party, and on being elected as a member for the dept. of Bouches-du-Rhône, he sat with that party. He distinguished himself by his fanatical opposition to Robespierre. On June 2, 1793, he refused to submit, and went to Caen to organise the Girondin resistance there, but was obliged to flee before the troops of the convention. He reached Bordeaux, but was there overtaken and made prisoner, after an ineffectual attempt to shoot himself. He was guillotined on July 25, 1794.

Barbary is the general name for the most northerly portion of Africa, from Egypt to the Atlantic, and from the northern frontier of the Sahara to the Mediterranean. It thus includes Morocco, Fez, Algeria, Tunis, and Tripoli, together with Barca and Fezza. The name B. is derived from the name of its anct. inhab., usually called 'Berbers' or 'Kabyles.' In anct. times, this part of Africa was under the dominion of Carthage, and was exceedingly, prespectively. was exceedingly prosperous. After the fall of Carthage, it was under Rom. rule, had many flourishing cities, and was regarded as the prin. granary of Rome. After being overrun by the northern barbarians at the fall of Rome it was subdued by the Saracens and flourished under their rule as much as at any period of its history. But the Saracenic government gradually became a prey to disorder and B. sank into a very degraded condition. A small number of Turks and renegades acquired it, and subjected it to the most brutal despotism. Since they could not compete with the European powers in war, they carried on an extensive system of marauding; and the B. Pirates marauding; and the 'B. Pirates' for the upper floor of a house, where were the terror of the merchants of grain, etc., is stored, and in the

finally at the conquest of Algiers by the Fr. The occupants of B. are principally Bedouins, Jews, Turks, and the Fr. colonists in Algeria. For a fuller description of the climate, produce, etc., see the various countries comprised in the name Barbary.

Barbary Ape, the Macacus inuus, belonging to the family of Primates, Cercopitoecide, is the only monkey found alive in a wild state in Europe. It is tailless, an agile tree-climber, and feeds on fruit. It is a native of N. Africa and the Rock of Gibraltar.

Barbary Pirates, see BERBERS. Barbastelle, a species of bat, found in England, France, and Germany, with hairy checks and lips.

Barbastro, the chief th. of a very fertile dist. of the same name, in the prov. of Huesca, in Aragon. situated on the Vero, which is crossed by stone bridges. B. is the seat of a bishop, and has a pop. of 7000.

Barbauld, Anna Lactitia (1743–1825), the only daughter and eldest child of John Aikin, D.D., was born at Kibworth, in Leicestershire. She was a precocious child, but was of such a modest and retiring nature that it required the importunities of her brother to cause her to pub. the first of her works. This was a vol. of poems, which met with an instant success on its appearance in 1773, going into four editions in the first year. In the same year a vol. of Miscellanies in prose and verse, by J. and A. L. Aikin, was pub. In 1774 Miss Aikin married the Reverend Rochemout B., a Fr. Protestant whose family had B., a Fr. Protestant whose family had settled in England in the time of Louis XIV. They removed to Palgrave in Suffolk, where Mrs. B. wrote her Hymns in Prose for Children, her best work. In 1785, after travelling for a year, they removed to Hampstead, where they remained until 1802, when they went to Stoke Newington. Mr. B.'s mind, which had near hear strongly belayaged. Newington. Mr. B.'s mind, which had never been strongly balanced, gave way entirely, and he died insane in 1808. Mrs. B. continued to live and work at Stoke Newington until her death. The original of Macaulay's 'New Zealander' is to be found in her work entitled '1811.' Her works as a whole are distinguished by poetic talent, a graceful style, and lofty principles.

Barbecue, derived from the Spanish word barbacon, was the name given to a framework placed over a fire, on which was placed meat, etc., to be dried or smoked. Later the framework developed into a large kind of gridiron on which whole animals could be roasted. In Cuba B. is used open-air feast on a large scale.

Barbed is the term used in heraldry for an arrow with a pointed or jagged head: also for the five green sepals which appear between the five petals of the conventional heraldic rose.

Barbed Wire Act, 1893, an act which enables a local authority to serve notice in writing requiring the occupier of land adjoining a highway to abate the nuisance caused by barbed wire fencing if it be likely to cause injury to persons or animals lawfully using the highway. If he fail to abate the nuisance, a court of summary jurisdiction, on application by the local authority, may order him to do so, and on failure to comply, the authority may execute the order and recover the cost from the occupier

Barbel (Lat. barba, beard), the common name applied to the genus of fish known as Barbus, of the family Cyprinide, allied to the carp and gold-fish. It has four soft appendages serrated. It lives in fresh, usually muddy, water in Asia, Africa, and Europe, is a large, coarse fish, weigh-

ing fifteen to eighteen pounds.

Barber (Fr. barbe, a beard) is one who is occupied in shaving, hair-dressing, and trimming the beard, etc. In former times the Bs. were joined with surgeons, and had a much higher position. In France the barber-surgeons were a distinct body under Louis XIV., and in England the Bs. were incorporated in 1461. They were which was bound round the arm

of Rome, and they ultimately, after known popularly as thick-heads and some vicissitudes, became possessed puff-birds respectively. some vicissitudes, became possessed pull-ouras respectively.

of the fiel of Palestrina, which had formerly belonged to the Colonna family. The B. have ever since ranked terrace inside the parapet of a ramamong the first Roman nobility, sev. part, which serves as a platform for individuals of their name having been successively raised to the rank of cardinuls, while the lay representative of dinuls, while the lay representative of the family bears the title of Roman prince, and is possessed of estates at scope. When guns are thus mounted,

United States it is used to denote an Palestrina. Albano and in other parts of the Rom. state. In the palace of the B. at Palestrina is the celebrated mosaic taken out of the Temple of Fortune of Præneste. (See Palestrina.) The palace B. at Rome is a vast structure, built by Bernini, and gives its name to the square before it. It contains a museum, a gallery of paintings, and a library, which was collected by Cardinal Francis B., one of the nephews of Urban VIII. The library is rich in valuable MSS.; its catalogue was printed at Rome in 1681, in 3 vols. folio. There is also a fine villa, with extensive gardens, belonging to the same family, at Rome, near the Thermæ of Diocletian, and another in the neighbourhood of Albano.

Barberini Vase, see PORTLAND VASE. Barberino di Mugello, a tn. in Italy, 15 m. N. of Florence, on the Sieve. It manufs. straw hats. In the neighbourhood is the villa of Caffegiolo, the anct, residence of the Medici.

of commune, 11,379.

from its mouth, and the third ray of Barberry, or Berberis vulgaris, is a the dorsal fin is long, bony, and species of Berberidaceæ which is frequently found in Britain. The leaves of the shoot appear as spines having B. vulgaris, common to in their axils dwarf shoots which bear a large, coarse fish, weigh- foliage-leaves and flowers. The flowers grow on a long, pendant stalk; the berry is oval, and is sometimes made into jam. The presence of B. plants is productive of the fungus called rust which develops on grasses.

Barber-Surgeons, see SURGEONS.

COLLEGE OF.

Barberton, a mining town of the Transvaal, situated 2830 ft. above sea-level on a side of the De Kaap allowed to let blood and to draw teeth; valley in 1886. It is connected by they were not separated from the rail with the Lourenco Marques-Presurgeons until 1745. The fillet round toria trunk railway. During the B.'s 'pole' signifies the rill. driven out from here by Gen. French.

before bleeding.

Barberini, an Italian family, originally from Florence, which was raised name applied to various birds of the any from Florence, which was raised name applied to various birds of the to a high rank among the Roman families Capitonide and Bucconide, nobility in consequence of the eleval common to tropical Africa, Asia, and tion of one of its members, Cardinal America, because of the prominent Maffeo Barberino, to the papal chair stiff bristles about the mouth which in 1623, when he assumed the name of assist them to catch insects. They Urban VIII. (Sec Urban VIII.) Urban are bright-coloured, and somewhat had three nephews, two of whom were resemble the cuckoo in shape. Those made cardinals and the third prefect of the Capitonide and Bucconide are made cardinals, and the third prefect of the Capitonidæ and Bucconidæ are

they are said to be mounted 'in barbette.' In the naval sense a B. is an armoured breastwork, fixed at no great height, behind which the heavy armament of a ship is mounted. The guns fire over the breastwork in the same way as over a B. on land, and are mounted on turntables, whilst the after-ends are protected by armoured hoods. Of late years the B. has superseded the other methods of firing heavy guns on board ship; the Téméraire in 1876 was the first British ironclad to be furnished with Bs.

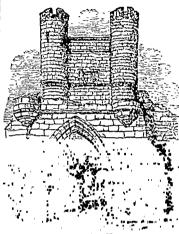
Barbey d'Aurévilly, Jules Amédée (1808-89), Fr. author, was b. at Saint-Sauver-le-Vicomte in the dept. of Manche, France. In 1851 he went to Paris, where he helped to found Le réveil. Among his most brilliant novels are Une vieille maîtresse, 1851; L'ensorcelée, 1854; and Un prêtre marié, 1865. See E. Grelé's J. B d'A.: sa vie et son œuvre, etc., 1902.

Barbeyrac, Jean (1674-1729), a Fr. jurist, b. at Beziers, Lower Languedoc, of Calvinistic parents. He became teacher of the belles-lettres in the Fr. college at Berne, 1697-1711; appointed by the senate of Berne to the chair of law and history at the Academy of Lausanne, 1711; professor of law at the university of Groningen, 1717, where he died. He made his reputation on Traité de Jeu (first ed. 1709), which was enlarged in the posthumous Amsterdam ed. of 1737. His other works include a translation of Puffendorf's Law of Nature and Nations, 1712; a new version of Grotius' De Jure Belli et Pacis and Histoire des Anciens Traités.

Barbezieux, a tn. in the dept. of Charente, France, 19 m. S.W. of Angoulême. There are manufs. of linen and hats. Wheat, oats, and rye are grown in the neighbourhood; the vine is cultivated, and the capons of B. are held in great repute. It is the anct. tn. of Barbesillum, once surrounded by walls and defended by a strong castle. The castle was destroyed by the Eng. in the wars of Guienne, and rebuilt by Rochefoucault, but has since been almost entirely demolished. B. was the bp. of Elias Vinet, a 16th century antiquary and scholar. Pop. about 3000.

Barbican, or Barbacan, in ancient fortification, was usually a small round tower for the station of an advanced guard, placed just before the outward gate of the eastle-yard, or ballium. In cities or tas. the B. was a watch-tower, placed at some important point of the circumvallation. It had sometimes a ditch and drawbridge of its own. The street of London called B. received its appellation from its vicinity to a tower of this sort

attached to the city wall, the remains of which were visible within the last half-century. Spelman (Glosary) says B. was a term likewise used for a hole in the wall of a city or castle, through which arrows and darts were cast out. It also signified a long narrow opening left in the walls, to drain off the water from a terrace or platform.



BARBICAN

Barbier, Antoine Alexandre (1765-1825), a Fr. bibliographer, was born at Coulommiers. He was a member of the Council for the preservation of scientific and artistic objects of value. In this capacity he was instrumental in saving from destruction many collections of books, which had been hastily stored up after the suppression of various civil and ecclesiastical establishments, and placing them in public librarian libraries. He was Napoleon, and administrator of the crown libraries until 1822

Barbier, Henri Auguste (1805-82), a Fr. poet, was born at Paris. He was a voluminous writer, and his works include poems, poetic and dramatic criticisms and studies, impressions of travel, etc. The work by which he is best known is his Iambic Verses, a satirical poem in which he paints the life of his time in a rugged, forcible style. Amongst his other works may be mentioned Lazarus, dealing with the oppressed condition of the Eng. people, and Pianto, which is concerned with the misery of Italy. B. died at Nice.

Barbier, Paul Jules (1825-1901), a Fr. dramatic author, was b. in Paris. He was first known as a poet, and his first two pieces were played at the

in collaboration with various other authors. His best work was, however. done as a librettist.

Barbieri, sec GUERCINO.

Barbiton, the name of a musical instrument in use among the ancients.

It was a kind of lyre.

Barbizon is a Fr. vil. near the forest of Fontainbleau, which gave its name 'Barbizon School' of artists. It was an outcome of the conflict between the classical and romantic schools of painting which occupied the first half of the 19th century. In 1824 the pictures of Constable confirmed the rising generation of artists their resolve to abandon the pedantry of the old school. The B. school discarded the 'subject' idea. and took Nature herself as a guide. The struggle of the school to achieve recognition is the more remarkable, in view of the beauty of their pictures. The B. school, the distinctive note of which may be seen in the works of Millet and Rousseau, includes Corot, Millet, Rousseau, Daubigny, etc.

Barbou, the name of a family of Fr. printers, who long rendered themselves famous for the correctness as well as elegance of the works which

issued from their presses.

Jean B. the first of the name who is known, was settled at Lyon, where he printed the works of Clement Marot, 1539. His descendants continued to exercise their art for more than two centuries. Two brothers of the family settled at Paris, Jean-Joseph B. in 1704, and Joseph B. in 1717. Leoph Géneral B. packer of 1717. Joseph Gérard B., nephew of the two Bs. last mentioned, became a bookseller in 1746, took the printing office of his uncle Joseph's widow in 1750, and soon afterwards engaged in the series of classics which bears his name.

Barbour, Sir David Miller (b. 1841), British financier, became an Indian civil servant, and in 1887 was appointed financial member of Council of Governor-General of India. Since then he has been a member of various royal commissions on financial matters both at home and abroad, the latest appointment being that of member of the Royal Commission on Shipping Rings in 1907. In 1889 he was created K.C.S.I., and in 1899 K.C.M.G.

Barbour, or Barber, John (?1316-95), he took holy orders, and was promoted by King David II. to the archdeaconry of Aberdeen about the year 1356. He obtained permission from Edward III. to reside in Oxford for a few Jews and Greeks. Area, about a time for the purpose of studying 70,000 sq. m. Capital, Benghazi. (1357), and similar permission to study and travel in England was granted in Venetian language, sung by the gon-

Comédie Française. Later he wrote 1365 and 1368. In 1373 he was clerk many dramas and comedies, often of audit to the household of King of audit to the household of King Robert II. and in 1374 one of the auditors of the exchequer. His fame rests on *The Brus*, which he completed about 1376. It is an epic poem. written in octo-syllabic verse, recording the adventures of Robert the Bruce and his companion, Sir James of Douglas. It is written with great spirit; the style is clear and simple and the language more 'modern than that of his contemporaries. The Edinburgh edition (1571) is the first Edinburgh edition (1571) is the first printed copy extant. The best edsare by Skeat, for the Early English Text Society (1870-7); and by Metcalfe for the Scottish Text Society, 1893-4; and Barbour's Bruce, ed. by W. M. Mackenzie, 1909. The Siege of Troy is a delightful fragment. The Buik of Alexander and the Legends of the Saints are not now generally held to be his. See John Barbour, Poet and Translator, 1900, by George Neilson. Neilson.

Barbuda is an is. of the British W. Indies, situated in 17° 33′ N. and 61° 43′ W. It is 62 sq. m. in area, and is a dependency of Antigua, being for-merly in possession of the Codrington family. It is densely wooded, and has a lagoon on the W. side. It exports phosphate of lime and salt, and breeds

cattle and horses. Pop. about 1000.

Barby is a Ger. tn. in the prov. ot Prussia, on the l. b. of the Elbe, 82 m. S.W. of Berlin. It has two churches and a seminary school, and there are sugar factories and breweries.

5500.

Barca, or Barka, a semi-independent Turkish vilayet, bounded on the N. by the Mediterranean, on the E. by Egypt, on the W. by the Gulf of Sidra, and on the S. by the Libyan Desert. The chief products are corn, rice, olives, dates, and saffron, and there is good pasturage. The most important oases are Aujila and Jalo. This region is the site of anct. Pentapolis (Five Towns), viz. Berenice (Benghazi), Arsinoë, Barco, Cyrene, and Apollonia. B. became a state in the time of Cyrus, but within a century became subject to Egypt. was to the Romans one of their chief granaries along the African coast. It afterwards was declared a Gk. prov.. but was conquered by the Arabs in 641. There are many traces of its early history-ruined temples, aqueducts, etc., are scattered about the country, and many Greek and Rom. coins have been discovered. The pop. cstimated at 500,000, consists of Bedouin Arabs, Berbers, Turks, and a few Jews and Greeks. Area, about 70,000 sq. m. Capital, Benghazi. Barcarolle, a kind of song in the

considerable refinement. Formerly most of the gondoliers knew by heart doliers; they have still, however, their songs in response to each other. The old B. was sung in parts, at stem and stern of the same boat, by its own gondoliers. The well-known airs La Biondina in Gondoletta and O Pescator dell'. Onde are pleasing specimens of this species of song.

broad plain between the mts. and the sea. It abounds in corn, oil, wine, and fruit, and has sulphur baths. It forms one town with Pozzo di Gotto, the combined pop. being about 14,500.

Barcelona, the second largest and

most important manufacturing city in Spain, and the principal seaport is situated on the Mediterranean Sea on a plain between the rivers Besos on the N. and Llobregat on the S. The surrounding vegetation is almost of tropical luxuriance, contrasting almost strongly with the factories and busy docks. Formerly the city was surrounded by a strong line of ramparts, but these were pulled down in 1845 because they impeded the natural developments of the city. The ground which had been covered by the cita-B. is del was laid out in gardens. divided into two parts, viz. the old town and the new. The former, with its narrow streets and general irregularity, forming a strange contrast to the wide streets and symmetry of the new tn. The main street of the old tn. is the Rambla, which has a fine avenue of plane-trees. The houses of the new tn. are chiefly in the modern Eng. style of architecture. The large suburb of Barceloneta lies to the E. Gracia, Las Corts de Sarria, and Horta are the chief suburbs. B. is the see of a bishop, and contains many ecclesiastical buildings. The cathedral, erected during the 13th and 15th centuries, is a fine example of Spanish Gothic architecture. It contains the tomb of Santa Eulalia, the patron saint of the city, and its stained-glass windows are among the finest in Spain. The university, founded in 1430, The university, founded in 1430, was suppressed in 1741, but restored There are also many schools in 161. The test and many schools and colleges of art, science, and medinormal royalists at Cholet in 1793, B. was cine, hospitals, charitable institumortally wounded. He died the next mortally wounded. cine, hospitals, charitable institu-tions, and sev. theatres. The prin. tions, and sev. theatres. The prin. day, manufs. are silk, woollens, cottons, breath lace, hardware. Its fabrics are much whom

dollers at Venice. These airs are often inferior to Eng. wares. Chief imports composed for the common people, are raw cottons, raw woollens, coffee, selves. The airs are generally simple, butfull of melody, and frequently have considerable refinement. Formerly port is about 4000. The harbour was port is about 4000. The harbour was considerable refinement. extended and its entrance improved Liberata of Tasso, and sang it in their ports in the Mediterranean. The popgondolas in alternate stanzas. But in 1900 was 533,000. It is the head-quarters of Catalan art and literature. Area of prov. of B. is 2890 sq. m., and its pop. (1897) 1,034,538. Many interesting historical events are connected with B. It is said to have been rebuilt by Hamiltar Barca, father of the great Hannibal, about 233 B.C. It was held by the Romans, Goths, Moors, and Franks, and, with the Barcellona, a tn. in Sicily, in the prov. of which it is the cap., was made prov. of Messina. It is situated in a an independent country about A.D. 864, and incorporated with Aragon 1164, the last count becoming king. The city has suffered much by war and plague. The siege by the Fr. in 1694 was relieved by the approach of the Eng. fleet, commanded by Admiral Russell; but the city was taken by the Earl of Peterborough in 1706. It was bombarded and taken by the Duke of Berwick and the Fr. in 1714 and was taken by Napoleon in 1808 and retained until 1814. It revolted against the queen in 1841, and was bombarded and taken in Dec. 1842 by Espartero. Frequent insurrections have been raised here. An exhibition was opened by Alfonso XII, in March 1877. In the year 1879, B. was in a very prosperous state and has continued so up till the present time. In March 1882 there were violent riots on account of the French treaty, and Catalonia was in a state of siege. In 1856 a Progressist rebellion caused much bloodshed, and in 1874 the Federalists raised an insurrection

Barchamps, Charles Melchier Artus, Marquis de (1760-93), a celebrated Royalist leader in the revolt of La He received his baptism Vendée. of fire during the American War On his return to of Independence. France he was made a captain of the Fr. Grenadiers, and was in this service in the outbreak of the Revolu-Being a strong Royalist he returned to his château and remained in retirement until he was chosen a leader of the revolt in La Vendée. To his skill and judgment much of the success of the Vendeans was due. Dis-sensions broke out amongst the Vendeans, and finally, at the sanguinary encounter between revolutionists and his dying prisoners sworn to

massacre in revenge for his death tion.

should be spared.

Barckhausia, Barkhausia, or Crepis, is the name of a genus of Compositee which has six species in Britain. taraxacifolia and B. fatida have yellow flowers; the former grows in lime-stone dists. and the latter in chalky places. B. setosa is a native of Germany.

Barclay, Alexander (c. 1476-1552), poet, born probably in Scotland, travelled in Europe, became a monk at Ely and at Canterbury. His place in literature rests Ship of Fools, 1509, a translation or in 1604 was professor of law adaptation, in Chaucerian verse, of Sebastian Brandt's Narrenschiff, 1494, a satire of the social vices rather than the follies of the age. His other works are the Ecloques, 1513, an early pastoral in Eng.; The Myrrour of Good Maners, and a translation of Sallust's Maners, and a translation of Salusts Jugurita. See Jamieson, ed. of The Ship of Fools, 1874: Fairholt, ed. of 5th eclogue, The Cytisen and Uplondyshman; Fraustadt, Uber Barclay's Ship of Fools, etc., 1894.

Barclay, John (1582-1621), Scottish writer, born in France, son of William B. (q.v.). He came to London with his fother and pub. a satis on

with his father and pub. a satire on the Jesuits, Satyricon, 4 parts, 1603-14. Hesubsequently was reconciled to He died in Rome. Catholicism. Catholicism. He died in Rome. His popular political romance, Argenis, was pub. posthumously. See Dukas' Satyricon with Life, 1889; Boucher, 1879, and Dupont, 1875, for Argenis. Barclay, John (1734–98), a Scottish divine, was educated at St. Andrews, and became assist, minister at Fottergain 1765. His opinions

at Fettercairn, 1765. His opinions offended the Presbytery, which was supported by the General Assembly, and B. left the Church and founded the sect of the Bereans, so named after the people of Berea (Acts xvii. 11), who searched the Scriptures daily. See Memoir in collected works by

Thomson and Macmillan, 1852.

Barclay, John (1758-1826), Scottish surgeon, nephew of the founder of the Bereans, born in Perthshire; studied medicine at St. Andrews and Edinburgh; M.D., 1776. In 1806 he, was lecturer in anatomy to the College of Surgeons. He pub. valuable anatomical works, and was one of the pioneers of the movement for establishing surgical and pathological museūms.

Barclay, Robert (1648-90), Quaker theologian, b. at Gordonstown, Morayshire. His father, Colonel David B. of Ury, had served under Gustavus Adolphus. Robert was educated at the Scots College, Paris. Joining the Quaker society with his father in 1666, he was a strong controversialist with opponents, and suffered persecu-

tion. His Apology for the True Christian Divinity (Lat. 1676, Eng. 1678) is still a standard work of Quaker doctrine. He travelled with Penn and Fox, and was made nominal governor of the Quaker settlement of

East New Jersey by James II., 1682. He died at the family estate of Ury. Barclay, William (1546-1608), jurist, father of the author of Argenis, studied law under Cujas at Bourges, and became professor of law at the university of Pont à Mousson. In 1605 he had a dispute with the The Jesuits and went to England, but Angers, where he died. His chief legal work is De Regno et Regali Potestate, 1600; his posthumous attack on the temporal power of the pope, De Potestate Papæ, was edited by his son, 1609, and was answered by Bellarmino's De Potestate Summi Pontificis, 1610.

> Barclay-Allardice, Robert (1779-1854), pedestrian, generally known as 'Captain Barclay,' was a descen-dant of the Barclays of Ury. He served in the Walcheren Expedition. In his great walk he completed 1000 m. in 1000 successive hours, at Newmarket, 1809. His time varied from 14 min. 54 sec. at the start to 21 min.

4 sec. at the close.

Barclay de Tolly, Michael Andreas (1761-1818), Russian general, born in Livonia, of an old Scottish family settled there in 17th century; distinguished himself against the Turks (1788), the Swedes (1790), and in Poland (1794). He fought (1806) as major-general at Pollusk and at Eylau, where he lost an arm. In 1808-9 he commanded in Finland, and his darof Bothnia and capture of Umeo is famous. Minister of war (1810-13), he and Bagration commanded the two armies against Napoleon, 1812. He was superseded by Kutusov after his defeat at Smolensk and left the army. He resumed command at Dresden, Kulm, and Leipzig, and was made field-marshal, 1814, and Prince Bogdanovitch, 1815.

Bar-cochba, or Bar-kokba, i.e. ' son of a star' (Num. xxiv. 17), the name of one Simon or Simeon, leader of the last Jewish revolt from Rome (A.D. 132-135). Nothing is known of his origin; the Rabbi Aqiba recognised him as the Messiah. He was for a time extraordinarily successful, retaking Jerusalem. The Roms., under Julius Severus, captured Jerusalem (135), when B. was slain; the rebellion was ended with great slaughter at Bether. To later rabbinical writers he is known as Bar-coziba, 'son of deceit.

Barcochebas, see Bar-cochba. Bard, the name which the Celtic Angro-Scandinavians, they song to the accompaniment of harp, national victories and the great deeds of men. They led armies to battle, and they sang before their prince or chieftain in the hall, when the cup was passed down the benches. They flourished in Wales during the first of the century, when Taliesin, Aneurin, and Llywarch lived, King Howel Dha is supposed to have defined their success as court Bs. in A.D. 940, and

The appear to have the lived at the court of t with each other in skill, and judges, appointed by Welsh princes, awarded I. is supposed to have hanged the Bs... as promoters of sedition among the a people, but the bard-ship was revived by later kings, and existed down to the time of Queen Elizabeth. The eisteddfods discontinued about this time, but they were revived about 1822. Many early legends and ballads and much of the Arthurian cycle were handed down for generations in song by means of these Welsh bards.

In Ireland the order was probably hereditary, and appears to have been divided into three classes: 1. The Filidha, who sang in the service of war and religion. 2. The Breitheamhaim, who promulgated the laws in a recitative chant. 3. The Seanach-aidhe, who chronicled the family history of the patrons to whom they were attached. Besides these three orders, there were minor Bs., called after the instruments they played. The harp, said to have belonged to Brien Boiromh, who fell in the hour of victory against the Danes on the plain of Contart, is preserved in the museum of Trinity College, Dublin. After the conquest of Ireland by Henry II., the number of Bs. declined, though many chiefs retained them to keep alive a national feeling by their songs and legends. by their songs and legends. Tur-lough O'Carolan (1670-1737) was the

last Irish bard. Less is known of the Scottish Bs., but it is supposed that their status was very similar to that of the Irish They existed in the Highlands

down to the 17th century.

The name 'B.' has in modern times been applied to poets, e.g. to Shakespeare, the 'B. of Avon,' and to Burns, the 'Ayrshire B.'

See Stephens, Literature of the (1900) 2002.

Rymry, 1873; Jones, Relics of the

peoples applied to their minstrels, Welsh Bards, 1884; W. F. Skene, Four peoples applied to their minstrels, mentioned by classical writers as early as 200 B.C. Like the 'sceops' of the Anglo-Saxons and the 'skalds 'of the Scandinavians, they celebrated in song, to the accompaniment of the harp, national victories and the great deeds of men. They led armies to battle, and they sang before their prince or chieftain in the hall when the same of the

been regulated again by Gryffyth ap theologian, born at Edessa. For Conan about 1078. Eisteddfods were some time he lived at the court of held at Caerwys, Aberfraw, and Mathraval, when the Bs. competed by Caracalla (217), he fled into Armenia. It was largely through the influence of B. that Christianity was suitable degrees and privileges. On first introduced into Edessa. He the conquest of Wales (1284), Edward wrote 150 hymns, in which he experience and which hed pressed his doctrines, and which had far-reaching influence. B. accused of polytheism, a which Eusebius he denied, and speaks of him as having been a Valentinian Gnostic. He upheld that evil was the revolt of matter upon spirit. and yet he maintained that the devil was an independent, existing spirit. He denied the doctrine of the resurrection of the body, and preached that Christ's body was not living flesh, but an illusory likeness sent by God. The book of Laws of Countries—Cureton, Spicilegium Spriacum, 1985 and the Mark Victory London, 1855, and the Ante-Nicene Fathers, New York, 1895—has been ascribed to B., but is probably the work of a disciple. For early references, consult Harnack, Geschichte der Altchristlichen Litteratur, vol. i., Leipzig, 1893, and for monographs, Merx, 1863; Hilgenfeld, 1864. Bardi, a tn. in the prov. of Piacenza, Italy, 31 m. S.W. of Parma. Pop. (commune) 7000. Bardill, Christoph Gottfried (1761-

1808), Ger. philosopher, was born at Blaubeuren in Würtemberg. He became a professor of philosophy at Stuttgart, and as an expounder of rational realism he anticipated such thinkers as Hegel and Schelling. chief work, in which he criticised Kant, is the Grundriss der Erster Logik, 1800.

Bardowiek, a tn. in the prov. of Hanover, Prussia, 4 m. N. of Lüne-burg on the Ilmenau R. It was formerly an important commercial centre, but in 1189 Henry the Lion. Duke of Saxony, destroyed the town There are ruins of a cathedral, and a 14th century Gothic church.

Bardsey, a small is, off Carnarvon-

hazardous trade in taking eggs from S.W. the sea-cliffs. The soil is fertile, and Ba the Welsh bards. There was formerly an abbey of some celebrity on it, which was suppressed by Henry VIII. Numerous graves lined with stone, a large building, said to have been the abbot's lodge, and a ruined chapel or oratory are the only re-Pop. about 120.

Bardstown, or Bairdstown, the co. seat of Nelson co., Kentucky, near the Beech Fork of Salt R., and on the Louisville and Nashville Railroad; 39 m. S.E., by rail, of Louisville. It has sev. educational institutions, besides various manufs., distilleries, saw-mills, and a wagon factory. There is trade in cattle, hogs, grain, and whisky. Pop. (1900)

1711.

Bardwan, or Burdwan, the cap. of the dist. B., Bengal, British India, 67 m. from Calcutta. It contains the palace and gardens of the Maharajah of B. and numerous temples, but the rest of the buildings are squalid. is a collection of seventy-three vils. and suburbs. Pop. (1901)35,022. The dist. has an area of 2697 sq. m., and a pop. of 1,534,100. There are coal mines at Raniganj. The principal The principal exports are silk, jute, tobacco, rice, and iron and coal.

and fron and coal.

Barebones Parliament, the name of the 'Little Parliament' (July 4-Dec. 12, 1653), summoned by Cromwell after his violent dissolution of the after his violent dissolution of the 1811, Fr. revolutionist, b. at Tarbes: 'rump' of the Long Parliament. It was elected as deputy for Bigorrs consisted of 140 selected nominees of to the states general, 1789, and the congregations in each county. reported the debates in his paper, Its unruliness and incapacity led to the Point du Jour. He joined the its dissolution at the request of the republican party after the flight to moderates. The name, given to it by Varennes. As deputy for Hautesits opponents, is due to the member | Pyrénées to the National Convention, for London, Praise God Barbon or B. 1792, he first was a Girondist, but (1596-1679), a rich leather-seller and later one of the Mountain, and voted fifth monarchy man. He does not for the death of the king. He closed seem to have taken any prominent part in the parliament. He was im-prisoned, 1661-2, for his opposition to the restoration.

Barège, a gauze-like fabric for summer wear, used for women's dresses. It is a mixture of silk and worsted, or cotton and worsted, and is generally produced in light colours. The best quality is manuf. in France, where it is called crepe-de-barege, from produced at Bagnères de Bigorre.

Barèges, a watering-place with warm sulphur springs, Hautes-Pyré-

shire, N. Wales, about 2 m. long by nées, France. It is 4040 ft. high, and 1 m. broad. It is only accessible on only visited in summer. The mixed the S.E. side, where there is a small silk and wool fabric, barège, is now well-sheltered harbour. There is a made at Bagnères de Bigorre, 25 m.

Bareilly, a tn. and dist., B. or Ro-Bards' Ey, the Isle of Bards) is, ac-British India, area of dist. 1580 sq. cording to legend, the last retreat of m.; pop. 1,090,117: of tn. 131,208. This dist. is highly cultivated, and is irrigated by the Rohilkhand canal system. There is an important native

college in the town. Bareith, see BAIREUTH.

Barents, Willem (d. 1597), Dutch explorer. His first expedition, 1594, in search of a N.E. passage to Asia, surveyed the W. coast of Nova Zembla to the Great Tee Cape; the second, 1595, failed; he was chief pilot to the last journey, 1596. He discovered and named Spitzbergen and Bear Is., rounded Nova Zembla, and was the first to winter in the ice. On the return in open boats he died The hut where they wintered was found in 1871, and B.'s jour. in 1875. B. Sea and Is. are named after him. See Hakluyt Soc. trans. of De Veer's Three Voyages of Barents, 1876.

Barents Island, an is. in the E. of the Spitzbergen Archipelago, named after William Barents, 'the 16th-century

Dutch explorer.

Barents Sea, that part of the Arctic Ocean which lies between the European mainland, Nova Zembla, Franz-Josef Land, and Spitzbergen. Its average depth is 100 fathoms. part near the Kola coast is called the Murman Sea. Consult Nansen, The Norwegian North Polar Expedition,

vol. iii., 1902

Barère de Vieuzac, Bertrand (1755his speech with the phrase, 'the tree of liberty does not grow if it be not watered with the blood of kings.' He was member of the first and second Committee of Public Safety, 1793, supporting Robespierre, but with-drawing at his fall. He was im-prisoned after the terror, but escaped. He was employed by Napoleon, turned Royalist in 1814, but was exiled as a regicide in 1815. He was the tn. Barèges, where it was first the last survivor of the Committee made. At the present time it is chiefly of Public Safety. See Aulard, Les Orateurs de la Convention, 1905. Baretti, Joseph (1719-89), It. writer,

born at Turin: he came to London in

1751 as a teacher of Italian; he became conveyance of real property now secretary to the Royal Academy, and obsolete. It was one of the means pub. the *Italian Library*, 1757. His by which an owner could avoid the secretary to the Royal Academy, and jour., Frusta Letteraria (the 'Library Scourge'), Venice, 1763-5, was marked by bitter but independent criticism. He was well known to Johnson and his circle, and often figures in Boswell's He was tried on the capital charge of killing a man who assaulted him in London, 1769; the evidence of Johnson, Burke, and Garrick as to his character served to secure his acquittal. His Dictionary and Grammar of the Italian Language and Lettere Famigliari, trans. 1770, were well received.

Barfleur, seaport tn. in the dept. of La Manche, France, 15 m. from Cher-It was an important harbour for the Channel passage to England in the Middle Ages. The White Ship sank off the port with Henry I.'s only son William. Off Cape B. was fought the first of the series of naval battles between Tourville and Russell, May 1692, known in Eng. history as the battle of La Hogue (q.v.). The Cap Barfleur lighthouse is 233 feet high. The Cape

Barfod, Paul Frederic (?1818-96), a Danish historian who favoured the union of Norway, Sweden, and Denmark. Of his works the chief are: A History of Denmark and Norway under Frederic III. (1873) and A History of Denmark, 1319.

Barfrush, see Balfrush. Barga, a tn. in the prov. of Lucca,

Haiga, a th. in the prov. of Indeed, that it manufs, paper. Pop. 8500.

Barga Pass, a pass of the Himalayas in the N. of the Rajput hill state of Bashahr, or Bisaher, Punjab, India.

Bargagli, Scipione, was b. at Siena.

in Tuscany, of a patrician family, about the middle of the 16th century. He became distinguished as an elegant writer. B.'s prin. works are: I Trat-tenimenti, 4to, Venice, 1557, which by some is called B.'s novels; Dell' Imprese, 4to, Venice, 1594, a work of considerable erudition concerning the origin and symbolic language of devices and mottoes in the ages of chivalry; Il Turamino, ovvero del Parlare e dello Scriver Sanese, 4to, Siena, 1602, a dialogue on the various dialects of Tuscany, but especially that of Siena. B. wrote other minor works both in prose and verse. died in 1612. He

His brother, Girolamo, who was a professor of law in his native city, wrote a book called Dialogo de Giuochi che nelle Vegghie Sanesi si usano di fare, Svo, Venice, 1575, which is an explanation of the numerous social games which used to be and are still occasionally played in Italy among friendly parties assembled to pass together the winter evenings.

Bargain and Sale, in law, a form of

by which an owner count avoid the feudal restrictions on the disposition of land. 'Livery of seisin,' i.e. actual open delivery of land alone gave the legal title. If A bargained to sell land to B, and B gave even nominal consideration, the courts gave B the equitable. i.e. beneficial ownership. The Statute of Uses, 1535, transferred the legal title to the bargainee. thus allowing an easy method of secret conveyance. To prevent this, by the Statute of Enrolments, 1835, all such conveyances were to be by deed publicly enrolled. This was also evaded by conveyance by 'lease and release.' The Real Property Act, 1845, did away with the necessity of both these forms. both these forms.

Bargé, a tn., prov. of Cunco, Piedmont, Italy, S.W. of Turin. Pop. 2074. There are slate quarries in the

neighbourhood.

Barge, a term generally applied to large flat-bottomed boats used for the carriage of heavy goods on canals or rivers; for this purpose they are usually towed; when employed for the transhipment of cargo from larger vessels to shore, or vice versa, they are termed 'lighters;' 'dumb-barges' are steered with an oar and drift with the tide. The barges of the Great Lakes and E. coast of N. America run to great size, carrying over 3000 tons of cargo. The 'state barge' is an ornamented vessel with a compartment for passengers in the stern, and is rowed by a crew of ten to more oars. In former days the Lord Mayor's procession was rowed on the Thames in his state-barge with those of the different livery companies. The royal state barge, manned by the king's watermen was seen at Henley Regatta in 1912. The modern 'house boat but

bank at O:

the college rowing clubs.

Barge-board, formerly often called berge-board, the board attached to the projecting roof of a gable, covering the rafters and protecting them from weather. When elaborately carved, as in the 14th and 15th centuries, they form an ornamental feature of the roof. Original Bs. of this date are sometimes to be seen on the gables of porches of churches and on lych gates.

Barge Course, a term applied to that part of the tiling of a roof which projects over the gable end of a building; the under part of which is stuccoed. To protect this stucco from the weather, two boards, called bargeboards, following the inclination of the roof, are often attached to the duchy in the 14th century, and was gables of old Eng. houses, fixed near annexed to Naples, 1558. gables of old Eng. Houses, and carved Baris

Ganges, 31 m. from Patna. Pop. 12,400.

of Great Britain, 1840, and pub. a revised version of the Bible, 1848.

Barham, Richard Harris (1788-India. There is in this dist. a canal 1845), Eng. writer, born at Canterbury; inherited Tappington Everard its water from the Ravi. in Kent; was educated at St. Paul's and Brasenose College, Oxford. He was ordained 1813; minor canon of St. Paul's, 1821; a priest in ordinary to the Chapels Royal with a city living, 1824. In 1837 he contributed to Bentley's Miscellany the first of in verse.

· the pseudonym

by.' The first collected series were pub. in 1840, second, 1842, and third. 1847, with a Memoir. Their high spirits, amazing rhymes, and inexhaustible humours fully account for their lasting popularity. See *Life and Letters* by his son, R. H. D. B., 1870.

Bar Harbour, Hancock co. on the E. side of a fashionable summer resort.

Bar-Hebræus, see ABULFARAGIUS.

The B. tribe of Nilotic negroes are a pastoral people of the White Nile, S. of the Dinka and W. of the Galla tribes.

Bari, chief tn. of the prov. of B., Apulia, Italy, on the Adriatic, 69 m. N.W. of Brindisi. Pop. (1901) 77,478. It is the seat of an archbishopric and: of the 9th Army Corps. Its trade and industries, olive oil, soap, iron and steel, and chemicals make it the most important centre of Apulia. In the old tn. are the cathedral, S. Sabino, 1035-1171, the churches of S. Nicola of Myra, 1087, and S. Giorgio, 11th century. The Norman castle is used as a prison. The anct. Barium was a harbour in Rom. times. Captured by the Saracens, 812, it fell to the Byzantine empire, 885. It was taken by the Normans under Robert the Normans under Robert Guiscard, 1071. It was an independent

Bariatinski, Alexander Ivanovitch, ince (1814-79), Russian general, Barh, a tn. in Bengal, British India, served with great distinction in in the dist. of Patna, on the r. b. of the the Caucasus, 135 and 1845, and Ganges 21 m from Patna Barbas B after successful campaigns, 1848-56. was made commander-in-chief and Was made commander-in-chief and governor-general. Within three years he broke the back of Shamyl's resistance, taking his stronghold and was the son of Thomas Foster B. (1766-1844), and the founder of the leader himself at Gunib, (1766-1844), and the founder of the Darghestan, 1859. He was made religion called 'Alism.' He edited Jeremy Collier's Ecclesiastical History health, retired, and died in Geneva. Barham, Richard Harris (1788-1848). Barham, Richard Harris (1788-1845). Eng. writer horn at Canter-called the B. D. Canal which receives

Barili, a tn. W. coast of Cebu prov., Philippine Is. It is a fertile, wooded dist., and trades in woven fabrics (silk, cloth, etc.). Has also important Pop. with dist. round fisheries.

(1903) 31,500.

Barilla, the Spanish name of an impure carbonate of soda imported into Britain from Spain, the Canary Islands, Sicily, Italy, and France. It is obtained from the ashes of plants, especially Salsola soda, and is used in the manufacture of glass and soap. Baring, the name of a family of

Eng. bankers and financiers, several members of which have been distinguished as statesmen and adminis-There are four peerages in trators. the family, the earldoms of North-brook and Cromer, the baronies of Mt. Desert, an is. off the coast of brook and Cromer, the baronies of Maine, U.S.A. Steamers pass regularies to New York, Portland, and B. came from Bremen, in Germany, Boston, Pop. about 2000. Exeter. His son Francis (1740-1810) Barhiya, a tn. in Bihar, India; founded the banking house of B. pop. 15,000.

Bari, dist. in the N.E. of Uganda, chairman (1792) of the E. India Co., on the White Nile, N. of Albert supported Pitt in parliament (1784-Nyanza. Its centre is Gondokoro. 1806), and was made a baronet, 1793. At his death the firm was the first banking house in Europe. His eldest son, Sir Thomas (1772-1848), was a great art collector, and the firm was managed by his second son, Alexander (1794-1848), who extended its in-fluence in America, was president of the Board of Trade, 1834, and made Baron Ashburton, 1835. He settled the Canadian-Marine boundary question, 1842. At his death the management of the firm passed to Thomas (1799-1873), second son of Sir Thomas, and on his death to Edward (1828-97). son of Henry, third son of the founder of the firm, who was created Baron Revelstoke, 1885. It was during this period that the continued default of the Argentine gov. involved the firm in such difficulties that a most serious financial crisis ensued (1890), only relieved by the action of

the Bank of England and the prin. the Bank of England and the prin. London joint stock banks, in taking over the enormous liabilities of the firm. B. Brothers was reorganised as a limited company. Sir Thomas B.'s eldest son, Sir Francis (1796-1866), was Chancellor of the Exchequer (1839-44), First Lord of the Admiralty (1849-52), and created Baron Northbrook, 1866; his son Thomas (1826-1904) was made Earl Northbrook, 1876, was Viceroy of India (1872-76), and First Lord of the Admiralty First Lord of the Admiralty -85). The youngest son of youngest son of Henry B., a brother of the first Lord Revelstoke, is Evelyn B. (1891), first Earl Cromer (q.v.).

Baring-Gould, Sabine, Eng. author, born at Exeter, 1834; educated Clare College, Cambridge; was ordained and became rector of E. Mersea, Essex, 1871, and chard, Devon, 1881. of Lew Trenchard, Devon, 1881. From 1854 on-wards he has written many books of folklore, mythology, ancient manners and customs, and of travel, such as the Book of Were Wolves, 1865; Curious Myths of the Middle Ages, 1866; Germany (Story of the Nations Series), 1886; Curious Survivals, 1892; Cave Castles of Europe, 1911. His theological works include The Lives of the Saints, 15 vols., 1872-77. His Life of Richard Hawker of Morwenstow, 1875, new ed. 1886, was much criticised. His Songs and Ballads of the West, 1890, contain a valuable collection of folksongs. Of his long series of novels the best known are: Mehalah, 1880; John Herring, 1882; Court Royal, 1886; Red Spider, 1887. He is also the author of the follow-ing hymns: 'Onward Christian sol-diers;' 'Now the day is over;' and 'Through the night of doubt and 'Through the night of doubt and sorrow' (translated from Danish).

Baringo, Lake, in British E. Africa, about 30 m. N. of the equator. Its elevation is 3325 ft. and length about

16 m. Its position was not accurately known till 1883, when it was first seen by Joseph Thomson.

Baris, a genus of coleopterous insects, belongs to the family Curculionide, or weevils. It feeds upon dead parks of trees and is conserved. dead parts of trees, and is consequently not injurious in any way. B. lignarius feeds upon the elm-tree both in the larva state and that of the perfect insect. The little weevil selects a hollow tree, enters the dead wood hinder part first, lays its eggs, then dies, and its body thus blocks up the

Barito, a river of Dutch Borneo. which flows southwards into the Java Sea, after a course of 550 m. It is navigable for some distance up; at high tide the bar at the mouth has over twelve feet of water. An arm of the B. flows S.W. and joins the Kapuas; from the junction a canal

runs to the main stream.

Baritone, i.e. 'deep-sounding' (Gk. βαρύς, heavy, τόνος, tone), the name of that range of the adult male voice which lies between a tenor and a It is to be regarded as a high bass rather than a low tenor; compass from the lower A on bass stave to F

above the stave. Barium, a metallic element belonging to the group of alkaline earths. In 1602 Casciorolus, a Bolognese shoemaker, investigated the properties of heavy-spar, and noticed that it became phosphorescent in contact with ignited combustible matter. In 1774 Scheele discovered in a sample of black oxide of manganese a new earth which was afterwards identified with a constituent of heavy-spar. This earth was called baryta (Gk. βαρύς, heavy), and was shown to be an oxide of a metal by Davy. He succeeded in producing an amalgam of the metallie B. with mercury, but no satisfactory isolation of the metal was accomplished until Guntz, in 1901, obtained an amalgam by electrolysing a satuanalgam was heated in the electric arc to about 1000° C, and the B. obtained in the form of a soft, silver-white metal. The monoxide BaO is obtained by heating the carbonate or nitrate; further heating transforms the monoxide into the dioxide BaO₂. At a still higher temp. the additional oxygen is set free, so that by alternately lowering and raising the temp. oxygen may be absorbed and collected from the atmosphere. In Brin's oxygen process the pressure is varied instead of the temp. B. hydroxide is a white soluble powder; the solution is known as baryta-water and readily absorbs carbon dioxide from the air. B. chloride is obtained by the action of hydrochloric acid on witherite; it is used in the preparation of the artif artif) blanc fixe, pign e impurities in tł unon it. B. nitrate is a powerful oxidising agent, dies, and its body thus blocks up the entrance and protects the young.

Barisal, a tn. Bakarganj dist., Eastern Bengal and Assam, British India, on B. Riv. It has a large riv. trade. The B. guns, 'strange sounds, like the salts, and by the immediate precipitareport of canon or thunder, heard off tion of the salts by a solution of calreport of canon or thunder, heard off tion of the salts by a solution of catthe mouth of the riv., have not yet clum sulphate. B. salts are very been explained. Pop. (1901) 18,978. poisonous, causing death by paralysing the heart. strengthen the muscular power of the heart, but are seldom employed. The old sulphur well at Harrogate and the waters at Llangammarch are said to contain about six grains of chloride per gallon.

Bar-Jesus, see ELYMAS. Barjols, chief tn. in the canton of Var. Its chief exports are figs, raisins, The whisky distilleries and olives.

are important. Pop. 2500.

Bark consists of dried-up tissues, which often belong to different tissuesystems, lying outside the active cork-cambium of stems. The first phellogen nearly always dies, and a second phellogen produces a corklayer which naturally cuts off the supply of water to the outside layers, and consequently aids in the formation of the B. It may be either scaly or ringed: in the first case only isolated patches of tissue have become B. and as the trunk of the tree increases in size the B. becomes torn in scales; in the second case concentric rings are formed and the B. forms a complete ring. Examples of the former are the pine, plane, and larch, of the latter, vine, clematis, birch, and honeysuckle.

Bark, Peruvian, is obtained from sev. species of Cinchona, a genus of Rubiaceæ, and is of much value in medicine as the producer of such drugs as quinine and cinchonidine. It is known by many other names, such as Jesuits' bark, China bark, quina, quinquina, and cinchona bark. See

CINCHONA.

Bark, Uses of, are many and various. In savage lands canoes, shields, baskets, and clothing are made of it. In tanning it is a most valuable object, and the Quercus suber, an oak of S. Europe and N. Africa, produces an outer covering which is rich in tannic acid. Sev. other varieties of oak, such as Q. robur and O. tinctoria, are also much used, while Acacia decurrens and Abies Canadensis, or hemlock spruce, are other plants containing tannin. The bast fibres are employed in commerce, examples of which are flax, jute, and hemp. Medicinally B. is frequently noteworthy, the best-known being Cinchona, otherwise Jesuits, or Peruvian B.; other kinds are angostura, cascara, cascarilla, and witch hazel. Cinnamon is obtained from B., the wild cherry is valued in cough-mixtures, pomegranate B., or granatum, is used to expel tapeworms. Resins, by various barks.

Barka, see BARCA.

Barka, or Bengazi, the anct. Cyre-popular panoramas of London, and naica, is a Turkish vilayet on the of naval battles of the time.

Mediterranean, between Tripoli and Barker, Thomas (1769 – 1847), an

In small doses they the Gulf of Sidra. Its western boundary is Egypt, and on the E. it extends to the desert of Libya. It is mainly a desert plateau, though the fertile strip along the coast has some fine pasturage, and produces corn. The northern and western slones are covered with forests of pine-trees: dates and olivetrees grow, and flowering shrubs are found. The region was in old times the seat of the Pentapolis, or five Gk. cities: Berenice, Arsinoe, Barca, Appollonia, and Cyrene. B. is the only one of these of any consequence which now remains. The area of the vilayet is 60,000 sq. m., and pop. about 600,000.

Barkal, or Jebel Barkal, is a flattopped, isolated rock, which rises precipitously from the desert on the r. b. of the Nile, some little distance above the vil. that is now called Merawi. It was in anct. times considered as a holy mt. by the Egyptians. Its chief interest in modern times is in the excavations and researches which have been carried on in the neighbourhood. Many pyramids, varying in height from 35 to 60 ft., and six

temples are found.

Bark-bed, a term used in horticul-ture for a bed made of waste bark from tanneries. When placed in the brick pit of a forcing-house the bark ferments, and the warmth and moisture thus produced assist in the development of the tender plants.

Bark-beetles are coleopterous in-sects of the family Bostrichidæ, but the name is often given loosely to beetles of other families. They do much damage, as they live on the bark of forest-trees. See E. A. Ormerod's Manuel of Injurious Insects, 1890.

Barker, Benjamin (1776 - 1838), landscape painter, brother of the more distinguished brother Thomas B. (q.v.). Exhibited at the Royal Academy between 1800 and 1821. He pub. a set of forty-eight views engraved by Theodore Fielding.

Barker. Edmund Henry (1788 -1839), classical scholar, born in Yorkshire; educated at Trinity College. Cambridge. He assisted Samuel Parr at Halton and went to Thetford. His chief work was the revision of Stephanus' Thesaurus Græcæ Linguæ, 1816-28, severely criticised by Bloomfield. He died in great poverty.

Barker, Robert (1730-1806), artist, born in Ireland; settled in Edinburgh as a portrait painter. In 1788 he is used to expel tapeworms. Resins, produced the first panorama, that gums, and balsams may be produced of Edinburgh, following a suggestion of a German architectural decorator. He subsequently produced Breisig.

near Pontypool, Monmouthshire. He was allowed facilities for copying the works of some Dutch and Flemish works of some Dutch and Flemish masters by a rich coach-builder of Bath named Spackman, who sent him to Rome for four years in 1790. He returned to England after this and settled at Bath. Few pictures of the Eng. school have been more widely known than 'The Woodman,' which was engraved by Bartolozzi. His wickures as a wild wore widely nearly service. pictures as a rule were widely popular,

being engraved on china, linen, and pottery. His best work was the large

fresco which he executed in his house at Sion Hill, Bath, representing the 'Inroad of the Turks upon Scio in April 1822.' He exhibited at the British Institution and the Royal Academy. He was entirely self-taught in his art. He died at Bath on December 11, 1847. Barker Thomas Jones, Eng. painter, son of Thomas B., was born at Bath in 1815. After being given some education in art by his father, he went to Paris in 1834, and was a pupil of Horacc Vernet for several years. He exhibited frequently at the Salon, his first picture there, 'Beauties of the Court of Charles II.,' gaining him a gold medal. He subsequently received two other gold medals, and over twenty of silver or bronze, and in

ne went to England, and painted the portraits of sev. eminent men. Disraeli amongst them. He exhibited at the Royal Academy, and in 1870 went to the Franco-German war, whence he obtained many subjects for pictures. He has been called 'the Eng. Horace Vernet.' He died at London on March 27, 1829. 27, 1882. Barking, atn. Essex, England. It lies on the R. Roding, 8 m. from Liverpool Street Station, London. It is a
suffragan bishopric to St. Albans. Of
the great nunnery only a gateway
remains. All Hallows, B., near the
Tower of London, belonged to it.
The church of St. Margaret has some
interesting menuments. At R Creek

interesting monuments. At B. Creek is the outfall of the N. London sewer. Pop. (1901) 21.547. Barkly, Sir Henry (1815-98), Scotch colonial administrator, educated at Bruce Castle School, Tottenham. In 1845-9 he was M.P. for Leominster as a 'firm supporter of Peel's commercial policy, 1849 governor of British Guiana. Advocated introduc-tion of coolies and Chinese as labourers, developed colony by introducing rail-ways. 1853-6 governor of Jamaica; 1856 of Victoria; 1863 of Mauritius; 1870-6 of the Cape. K.C.B., 1853;

Eng. landscape painter, was b. in a vil. | G.C.M.G., 1874. See Theal's History of South Africa.

Barkly East, a tn. in Cape Colony, Africa, situated 58 m. E.S.E. of Aliwal North. It is the cap, of a dist. of the same name, and stands at an

elevation of 583 ft. Pop. (1891), 876.

Barkly West, a tn. in the northern div. of Griqualand West, Cape Colony, 25 m. as the crowflies from Kimberley, with which communication is maintained by cart. It is the cap, of the dist. of the same name, and possesses diamond mines, in which the 'river stones,' of great value, are found. It is situated at an elevation of 3800 ft. Pop. (1891), 1034.

Barkul, a tm. of Dzungaria, in Central Asia, to the N. of the Gobi Desert, in lat. 43° 40° N. and long, 94° E. Near to it is Lake B., which is situated 5100 ft. above sea-level. Barkway, an anot. vil. of Hertford-shire, about 4 m. S.S.E. from Roy-ston, in the N.E. of the Hitchin div. At the time of the Conquest the lands were divided among four great lords into as many manors, and afterwards into eight manors. It was privileged by Edward I. to have a market on Thursday, but this has been discontinued. Pop. about 1000.

Barlaam and Josaphat, a Christian religious romance very popular in the religious romance very popular in the Middle Ages, and trans. into every European language. The Gk. original is attributed to John of Damascus (ft. early 8th century), but modern writers have traced an earlier Syrian source. The story of the Indian prince Josaphat, and his withdrawal to the wilderness and a life of ascetism through the teaching of the 1840 he was awarded the Cross of the Legion of Honour for painting 'The Bride of Death' for the youngest daughter of Louis-Philippe. In 1845 he went to England, and painted the cism through the teaching of the hermit B., is a strange Christian version of the life of the Buddha. The name 'Josaphat' is a perversion of Bodisat,' and passages seem verbally from Sanskrit texts. taken identity of the two stories was noticed in the 16th century, but first stated by Labonlaye, 1859, and proved by Liebrecht, 1860. Further the lost 'Apology of Aristides,' a 2nd century defence of Christianity, has been found embedded in the story. Both B. and J. were canonised in the Eastern and Roman Church. Scc J. Jacobs, Barlaam and Josaphat, 1896.

Barleaus, or Caspar van Bærle (1584-1648), born at Antwerp. Studied theology at Leyden; took orders; pro-fessor of logic at Leyden, 1617; dls-missed from his office, 1619, for siding with the American acquient the the Arminians against with die Arminaus against the Gomarists. Professor of philosophy at Amsterdam, 1631. He wrote: (1) poems, chiefly in Lat., some in Dutch, which are the best; (2) an interesting history of Brazil, which was then possessed partly by the Dutch. One of his Lat. poems had for its subject

were published at Amsterdam, 1667.

Bar-le-Duc, or Bar-sur-Ornain, cap. of the Fr. dept. of Meuse, on the R. Ornain, and on the Marne-Rhine canal, 158 m. E. of Paris. It manufs. cotton, calico, and hosiery; preserves are made, and there is trade in timber, iron, wool, and wine. The church of St. Pierre dates from the 14th century, and contains the tomb of William of Orange. A ruined castle, the ancestral home of the Dukes of Bar, overlooks the entrance into Lorraine. The Old Pretender, Chevalier de St. George, lived here for three years. was the bp. of the Duke of Guise (1519-63), and Marshal Oud (1767-1847). Pop. (1901) 15,306. and Marshal Oudinot

Barleria, a genus of Acanthaceæ found in the East Indies. A few species grow in Eng. gardens and hothouses, and of these B. l. vulina, with its large bracts resemble g hops, and B. prionitis, a common swamp-plant in Java, are the most remarkable.

Barletta, a tn. prov. of Bari, Apulia, Italy. The fine harbour makes it an important scaport for the exports of wine, sulphur, and oil of the district Before the cathedral. S. Sepolero (12th century), is a fine antique bronze statue of Honorius. Pop. (1901) 42,022

Barley, or Hordeum, is an extensively-grown cereal of very ancient Graminee. There are four unimportant species of barley-grass in Britain, of which H. pratense and H. nurinum are two. H. vulgare is the murnum are two. H. nungare is the coultivated species, growing as far N. as 70 degrees; it is the Scottish bere or bigg, and has its grains in four rows; H. distichum is a two-rowed and H. hexastichum a six-rowed variety. H. cœleste, the Siberian B., a variety with naked seeds, is cultivated in some parts of Europe, but the grain shakes off so easily as to render a had shakes off so easily as to render a bad harvest very frequently.

Formerly B. was considered to be

of great value as a food in England. but now it is most often converted into malt for brewing and distilling. Ground down into barley-meal it is used for bread-making in N. Europe, and is a food for cattle; it is also made into decoctions for invalids, especially those who have pulmonary com-plaints, and is extremely soothing in fevers. The varieties known as potand pearl-barley are barley nutritious and wholesome, and it is to

is obtained by depriving the grain of its outer husk, the latter by rounding

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the accession of Charles I. His letters it and polishing it in the mill after the removal of the husk. In Scotland a peculiar dish, called sowens, is made of the bran, which is steeped in water and allowed to ferment for sev. days until it becomes acid.

B. grows best in a warm, dry climate; the soil should be richly manured, and the practice of sowing clover, rye grass, or other seeds with it is considered to improve it

greatly. Barley-break, an old Eng. country game which was popular in the 16th

and 17th centuries, referred to by Herrick, Sidney, Suckling, and Massinger, and still surviving with modifications in the N. of England and It was played by Scotland. couples, three of each sex, placed in three adjoining plots of ground, the central one being called hell. The middle couple, always united, had to attempt to catch the other couples as they changed places, these latter being allowed to break. The name may have come from the stack-yard in which it was played. Barley Midge, a dipterous insect of

the family Cecidomyiidæ, allied to the Hessian fly, or Cecidomia destructor. It obtains its name from its destruction of B., while the latter is a spoiler

of wheat.

Barley-sugar, a confection made with a syrup prepared from sugar, hardened in moulds and generally twisted into spiral sticks. Originally the sugar was boiled in a decoction of barley.

Barlow, Francis (1626-1702), animal painter and engraver. He etched some of the plates of his own illustra-

tions to a translation of Æsop's fables.
There is also a book of birds by B.,
engraved by W. Fairthorn.
Barlow, Henry Clerk (1806-76),
English commentator and writer on Dante, born at Newington Butts, died at Salzburg. Apart from many separate papers published on various special subjects connected with the poet, his prin. work is Critical, Historical, and Philosophical Contributions to the Study of the 'Divina Commedia.' He bequeathed his

Dante Library to the Library of University College, London. Barlow, Jane (b. 1860), authoress of sketches, novels, and tales of Irish life and character, was born at Clon-tarf, Dublin. Her father, the Rev-W. B., was formerly vice-provost of Trinity College, Dublin. Of her numerous publications may be mentioned: Irish Idulls, 1892; Strangers at Lis-connel, 1895; Creel of Irish Stories, 1897; Irish Neighbours, 1907; Irish

Ways, 1909; Flaws, 1911. Barlow, Joel (1754-1812), American politician and writer, born in ConnecBarnabas

ticut; pub. his bombastic poem The Clifton Suspension Bridge, and the Vision of Columbus, 1787, expanded into The Columbiad, 1807. He went to France, 1788, and became a violent Republican; Advice to the Privileged Orders, 1791; Hasty Pudding, burlesque poem, 1793; he was American consul at Tangier, 1795-97. and ambas. to France, 1811. He died near Cracow, on a visit to Napoleon. See C. B. Todd. Life, 1866; and M. C. Taylor. Three Men of Letters, 1895.
Barlow, Peter (1776–1862), Eng.

mathematician, was born at Norwich. From 1806 to 1848 he was professor

His studies in magnetic attraction, on which he pub. a treatise (1820), led to improvements in the compass, and the pattern he introduced remained in use till superseded by the Thomson compass in 1876. He was a F.R.S.. 1823, and Copley medallist, 1825.

Barlow, Thomas (1607-91), Bishop of Lincoln, was fellow and tutor at Oxford, where he was noted as a keen controversialist and casuist. He was provost of Queen's College and Bodley's librarian, 1642 and 1660. He was made Archdeacon of Oxford, 1661, and Bishop of Lincoln, 1675. He was the writer of innumerable pamphlets and books, and a violent opponent of Roman Catholicism. Through all the political changes of his long life he managed to retain all his clerical benefices and preferments. His works include Gunpowder Treason, Popery, Exercitationes aliquot Metaphysica de Deo, and Concerning the Invocation of Saints.

Barlow, Sir Thomas (b. 1845), phy-Barlow, Sir Thomas (b. 1845), physician, graduated at London University, 1874, and became fellow of the Royal College of Physicians, 1880. He is physician-extraordinary to His Majesty King George V., as he was to their late Majesties, Queen Victoria and King Edward VII. He was created a baronet and K.C.V.O. in 1901; fellow of the Royal Society 1901; fellow of the Royal Society 1909, and was president of the Royal College of Physicians, 1910.

Barlow, Thomas Oldham (1824-89). Eng. line engraver and mezzotinter, made R.A. 1881; he reproduced in line and mezzotint many of the works contemporaries, including

Landseer, Turner, Millais, etc.
Barlow, William Henry (1812–92),
British engineer; he supported the
use by engineers of the steel produced
by the Bessemer process; the chief works on which he was from time to time engaged include the building of instructions. The N.T. is not quoted St. Pancras Station, London, the in it. Internal evidence shows that it

Tay Bridge.

Barm, see YEAST.

Barmecides, a noble Persian family, whose sudden fall from greatness under the Abbaside caliphate is proverbial. Khalid ben Barmak minister of Mansur. and his Yahya tutor and later vizier to the great Haroun, in whose reign the family reached their highest power and prosperity, his sons Fadi and Ja'afar enjoying high favour. In 803 the whole family, save one, were ex-The romantic but not terminated. improbable story is that Haroun dis-covered that Ja'afar had betrayed the caliph's sister after a marriage which was to be purely formal. It is likely that Haroun felt himself powerless in the hands of the family. The mock banquet or proverbial Barmecide feast is well known from the Arabian Nights, Barber's Tale.

Barmen, a tn. Rhenish-Prussia, Germany, on the Wüpper and the Aixla-Chapelle-Berlin main line. It joins Elberfeld. It is one of the chief manufacturing tas. of modern Germany, a centre of the textile industry, especially ribbon weaving, of machinery, cutlery, plated goods, and buttons. Dyeing and bleaching, soap-making and chemical works are also large industries. Pop. (1905) 156,148.

Barmouth, a seaside resort, Merion-ethshire, N. Wales, in Cardigan Bay, at the mouth of the Maw. Pop. (1901) 2214. Cader Idris lies across the Maw, and the Vale of Llangollen and Dolgelly afford beautiful excursions.

Barn, see FARM and FARM BUILD-

Barnabas, St., by descent a Levite of the country of Cyprus, his first name being Joses, or Joseph. The name of B. (son of consolation) was given to him by the apostles as appropriate to his character and works of charity. Alexander, a monk of Cyprus, says that he was brought as a youth to Jerusalem to study under He is first mentioned in Gamaliel. Scripture in Acts iv. 34. He it was who first introduced St. Paul to the Later he induced him to apostles. leave Tarsus and come to Antioch. He is supposed to have been martyred in Cyprus, but many traditions take him to Milan. Rome, and Alexandria. Barnabas, The Epistle of St. There

is still extant an epistle ascribed to St. Barnabas consisting of two parts, the first in Lat., the second in Gk. In the Gk. copy some parts are missing. The first is an exhortation, an argument to constancy in the belief of the and profession Christian doctrine. The second contains moral instructions. The N.T. is not quoted

was written at the time of the destruction of the temple. Origen and trations of Pilarim's Progress 1880 tion of the temple. Origen and Clement of Alexandria believed it to be authentic, and Lardner was also be authentic, and Lardner was also of that opinion, but it is generally now believed to be pseudonymous, and to be written by a Christian writer somewhere about the year 120.

Barnabites, a religious order, founded about the year 1530 under the name of Regular Clerks of the Congregation of St. Paul; they are so called because they first met in 1538 in the cloister of St. Barnabas at Milan. Their principal object was the education of the young. They were forbidden also to accept any prefer-ment in the church save at the express command of the pope. order spread to France, Germany, Austria, and Spain. They were suppressed during the time of the French Revolution, but returned in 1850. In 1880 they were expelled from France, but still exist in the other mentioned countries.

Barnaby, Sir Nathaniel (b. 1829), British naval architect, was born at Chatham of a family of shipwrights. In 1854 he became an admiralty overseer, and from 1870-85 he was chief naval architect in the offices of the controllers of the navy. He has pub. several works on shipbuilding, and in

1885 was created K.C.B.

Barnacle, Bernicle, or Balanus, is a genus of marine crustacean of the order Cirripedia and family Balanidæ. The testa is in six pieces, either conical or cylindrical, and its appearance has given it the vulgar name of acorn-shell (q.v.). The term is also applied to the genus Lepus, or shipbarnacle, found attached to floating objects. Both genera are cosmo-

politan.

Barnard, Lady Anne (1750-1825), Scottish authoress, the daughter of the fifth Earl of Balcarres, James Lindsay; married, in 1793, Andrew Barnard, Colonial Secretary at the Cape of Good Hope, 1797. She returned from S. Africa in 1802. Her beautiful ballad Auld Robin Gray was written, 1772, to music by Rev. W. Leeves, and pub. in 1783. only acknowledged the authorship in 1823 to Scott. See W. H. Wilkins' Memoir with original version—Scott's additions are poor-in South Africa a Century Ago, 1901. a series of her letters to Lord Melville.

Barnard, Frederick (1846-96), Eng. illustration of the household edition of Dickens, 1871-9. 'Character Sketches'

trations of Pilgrim's Progress, 1880. Also painter in oils. See Speilmann's History of Punch, 1895; Merry Eng-

ford, Conn., educated at Yele; was a member of the Conn. legislature and reorganised the state schools. 1837-42. In various offices he reformed education in Rhode Is., Wisconsin, and Maryland, and was first Commissioner of Education to U.S.A., 1867-70. His publications are numerous, and as an educationalist he is of the first rank, more especially as The founder and editor of the invaluable 10th the range and the first that the state of the market of the first that the f

born at Reading, and brought up as a Quaker, but conformed to the Church of England when nineteen years of age. He entered the counting-house of his father, a wine merchant in London, and was soon entrusted with the entire management. He was responsible for the withdrawal of the bill which was to affect the interest of the wine merchant. Soon after he was elected M.P. for London, which he continued to represent for nearly forty years, taking a very active part in the debates, and generally voting with the party opposed to the administration of Sir Robert Walpole. He was elected an alderman of London 1728, was knighted 1732, and was lord mayor of London 1737. In the for reducing the interest of the national debt to the general rate of interest, which was then very low, but the measure was defeated. He retired from public life in 1758.

Barnard Castle, a tn. of Durham. England, on R. Tees, 15 m. N.W. of Darlington. Pop. 4421. It contains the ruins of a 13th-century castle built by Barnard Baliol, grandfather of John Baliol, King of Scotland. The Rokeby of Scott's novel of that name is 21 m. distant. The chief manuf. is

flax thread.

Barnard College, for women, was founded by President Frederick A. P. Barnard of Columbia, in 1889, on the refusal of the trustees of Columbia College to admit women on equal terms with men. B. C. is affiliated artist: studied at Heatherley's Art with the Columbia University, and in School and in Paris. First work, set 1910 it was agreed that the president of charcoal drawings, 'The People of that university should, ex officio, of Paris,' Contributed to Punch, be president and a trustee of B. C. 1863-5; cartoonist to Fun for two The students register in the univeryears. His best-known work is his sity and read for degrees. In 1889 there were thirty-six students, which number had increased in 1908 to 580.

Barnardo, Thomas John (1845- advocated more moderate and con-1905), Eng. philanthropist, born in stitutional measures. In 1792 he was Ireland, and came to study medicine impeached on a charge of royalist at the London Hospital, where he sentiments, and guillotined in 1793. became interested in the condition of destitute children. In 1867 he opened his first 'home of refuge' in Commercial Road, and since then over 100 establishments have been set up. In 1873 he founded a 'village home' of fifty-two cottages at Ilford, Essex; where girls are trained in home conditions. Large numbers of the children, after education, are successfully placed in Canada and other British colonies. In 1891 the Young Helpers' League was instituted to enlist the

help of well-to-do children. Barnato, Barnett Isaacs (1852-97), great financier, son of humble Jewish parents of Aldgate, educated under Moses Angel at Jews' Free School, Spitalfields; in 1873 went to S. Africa as conjurer and entertainer: assumed the name of B., and traded as diamond dealer at Kimberley. In 1880 he estab. the London firm of Barnato Brothers; in 1881 floated the Barnato Diamond Mining Company, Kimber-ley. In 1888 amalgamated with De Beers Company, controlled by Cecil Rhodes. B. was a member of Kimberley divisional council from 1880; member for Kimberley in Cape Assembly, 1888 and 1894. He invested in mining and other property in the Rand (Transvaal), and was chief manipulator of the 'Kaffir boom,' London, 1895, suffering heavy losses afterwards. B. drowned himself during a voyage from Cape Town. See Raymond's Memoir, 1897; Cecil Rhodes, by Vindex, 1900; Fitz-patrick's Transcal from Within; McCall Theal's South Africa.

Barnaul, cap. of dist. of same name, Tomsk, Siberia, at junction of Rs. Ob and Barnaul, 230 m. S.W. of Tomsk. It is the administrative centre of the Altai mining dist., and has large smelting works, which receive the gold, silver, lead, and copper ores. Pop. 29,408.

Barnave, Antoine Pierre Joseph Marie (1761-93), Fr. revolutionist, born at Grenoble; became an advocate and early attracted attention in the town In 1789 he represented Parlement. Grenoble in the States-General, where for some time he had much influence as a leader of the popular party. He was one of the founders of the Jacobin Club, and successfully claimed the right of making peace or war for the National Assembly, in opposition to Mirabeau, who wished to leave it with the king. In 1791 he was one of the commissioners who brought Louis XVI. back from Varennes to Paris, and his sympathy seems to have been aroused as often this believe to the state of the sympathy seems. have been aroused, as after this he educated at Princeton theological

impeached on a charge of royalist sentiments, and guillotined in 1793. See his Life by Salvandy (1833) and Janin (1860).

Barnay, Ludwig, Ger. actor, born at Budapest, 1842. First theatrical appearance in Troutenau, 1860. 1861 engaged in Budapest, playing in most large towns of Austria and Germany. 1867 went to Leipzig state-theatre. 1868 to court-theatre at Weimar; 1870-5 member of Frankfort theatre 1875-80 of Hamburg theatre. For the next few years B. starred various tours, often appearing in Meininger. 1888 B. founded his own theatre in Berlin, and retired in 1894. Some of his chief rôles are Tell, Esser, Othello, Mark Antony, Lear, Hamlet, Kean,

Wallenstein. Barnburners, a political faction in American history. They were so called about 1844 on account of their enthusiastic support of radical reforms, which was compared with the rigour of the Dutchman who burnt down his barn to destroy the rats. They grew dissatisfied with the scanty recognition they received in the Democratic National Convention of 1848, and accordingly joined the Free Soilers in supporting the presidential candidature of Van Buren. In 1852 they compromised with their former opponents, the Hunkers, and were subsequently known as the 'Softs' or 'Soft-shells.'

Barnby, Sir Joseph (1838-96), Eng. musician and composer, born at York; educated at Royal Academy of Music. In 1862 he became organist at St. Andrew's, Wells Street, London; in 1864 conductor of Barnby's choir; conducted oratorio concerts at St. James' and Exeter Halls; in 1872 succeeded Gounod as conductor of the Royal Albert Hall Choral Society; in 1875 became musical director at Eton College; and in 1892 principal of the Guildhall School of Music. He was knighted in 1892. He composed numerous hymn tunes, church services, anthems, trios, part songs, and oratorical works, including the motet

oratorical works, including the motet King All Glorious, the oratorio Rebekah, 1881, and The Lord is King, a setting of the 97th Psalm.
Barnes, a tn. of Surrey, situated on the r. b. of the R. Thames, 2½ m. E. by N. of Richmond. It is on the south-western outskirts of London, on the London and South-Western Railway, and is also served by a service of motor omnibuses from London. Pop. 19,000.

Barnes, Albert, an American theologian, born at Rome, in the state of New York, on Dec. 1, 1798. He was seminary. After being in charge of a the grammar school at Dorchester; in church in New Jersey, he became the inister of the first Presbyterian of Whitcombe; in 1862 became rector church at Philadelphia in 1830. He was tried for heresy, on account of the spent the rest of his life. His Dorsettone of some of his Notes to the Epistle shire poems exhibit a deep love of to the Romans, but was acquitted. He nature as seen in his native co., and was a ciffed prescher and latterly a deep sympathy with a keep knowwas a gifted preacher, and latterly belonged to the new school of Presbyterians. He resigned, on account of failing eyesight, from Philadelphia in 1867, and died in that city on Dec. 24, 1870. He is best known for his notes to various books of the Old and the N.T., which, being very lucid and direct, are admirably adapted for Sunday schools and Bible classes.

Barnes, Joshua (1654-1712), classical

scholar, was born in London. He was educated at Christ's Hospital, and afterwards went to Emmanuel College, He was elected regius Cambridge. professor of Greek at Cambridge in 1695; in 1700 he married Mrs. Mason of Hemingford, a widow lady with a good jointure, a large part of which he devoted to the publication of his Homer; in 1711 he wrote to Harley three letters, which are preserved in Harleian Collection (Br. Mus. 7523), begging for preferment, but in vain. His widow creeted a monument to his memory at Hemingford. to his memory at Hemingford. His original writings are of little value: one is a history of Edward the Third, 1686-8, fol. His name is best known for his ed. of Homer, 1711, 2 vols. 4to, and of Euripides, 1694, fol.; and is preserved from oblivion only by its connection with that of Dr. Bentley. Barnes, Thomas (1785-1841), editor of The Times from 1817. He was educated at Christi's Hospital

of The Times from 1817. He was educated at Christ's Hospital and Pembroke College, Cambridge, taking his degree in 1808. He took up the profession of journalism in London, and was a member of the literary circle which included Leigh Hunt, Hazlitt, and Charles Lamb. He was at first an advanced Liberal, but his opinions had sufficiently changed to enable him to take over the editorship of The Times when Dr. Stoddart retired in 1817. He was responsible for the remarkable change in the outlook of the paper, which took place between 1831 and 1835; his recognition of the course of public opinion, aided by some personal feeling against Brougham, was the reason of this. His talents were of the highest order, and he was undoubtedly the director and controller of The Times in its general tone and outlook. He died on May 7, 1841, from the effects of an operation.

Barnes, William (1800-86), Eng. clergyman, philologist, and poet, born at Rushay, Dorsetshire. In 1823 he went to teach in a school at Mere, Wiltshire; in 1835 became master of

a deep sympathy with a keen know-ledge of his rustic neighbours, and have a general air of tender joyous-ness which is very pleasing. They ness which is very pleasing. They are steeped in Dorset lore and written The three col in the Dorset dialect. lections appeared under the names of Poems of Rural Life; with a Glossary and Dissertation, 1844; Homely Rhymes, 1859; and Poems of Rural Life, 1879. He also wrote a vol. of Poems of Rural Life in Common English, 1868. As a philologist he attempted to restore Saxon English. replacing Latin words by new native compounds. He expounded his theories in Outline of English Speechcraft, 1878. See his Life by his daughter, Mrs. Lucy Baxter, 1887.

Barnet, a tn. of Hertfordshire, England, 11 miles north of London. An obelisk near the town marks the site of the battle of 1471, in which the Lancastrians, under Warwick, who Lancastrians, under Warwick, whowas killed in the fight, were defeated by Edward of York. There are now three suburbs, New B., Friern B., and E. B., and the town is connected with London by electric tramways. Pop.

7876.

Barnett, John (1802-90), Eng. composer, b. at Bedford; composed songs part songs, instrumental music, and His works include: Omnipresence of the Deity, Lyrical Illustrations of the Modern Poets, 1834; The Mountain Sylph, 1834; Fair Rosamund, 1837; School for the Voice, 1844.

Barnett, John Francis, F.R.A.M. (b. 1837), Eng. musician and composer. bornin London; studied at Royal Academy of Music, London, and Leipzig Conservatorium; became professor at the Guildhall School of Music and the Royal College of Music. In 1861 he played at a Gewandhaus concert at Leipzig, and his first noteworthy composition, Symphony in A Minor, was performed in 1864 by the Musical Soc. of London. His works, mainly cantatas, include: The Ancient Mariner, 1867; Paradise and the Peri, 1870; The Lay of the Last Minstrel, 1870; The Raising of Lazarus, 1876; The Building of the Ship, 1880; The Wish-ing Bell, 1893; Liebeshed im alten Styl, 1895. Barnett, Samuel Augustus, Eng.

clergyman and philanthropist, born at Bristol, 1844, becoming Canon there, 1893. One of the founders and warden of Toynbee Hall, Whitechapel, 1884-1906, becoming president 1906.

This organisation aims at raising the taken prisoner by an English 74-gun moral and intellectual level of a poor district of London by the personal example and efforts of university example and efforts of university men. Canon of Westminster, 1906; president of the Sunday Society. Curate, St. Mary, Bryanston Square, 1867-72; vicar, St. Jude's, White-chapel, 1872-94. Chairman, White-chapel Board of Guardians, 1894, also Children's Country Holiday Fund. Select preacher, Oxford, 1895; Cambridge, 1899 and 1905. B. has pub. Practicable Socialism (with his wife). 1893: Service of God. 1897: wife), 1893; Service of God, 1897; Religion and Progress; Social Reform, 1909. Towards

Barneveld, a vil. in Gelderland, 17 m. N.W. of Arnhem, Netherlands;

pop. about 8000.

Barneveldt, Jan van Olden (1547-1619), a Dutch statesman, grand pensionary of Holland. He was born at Amersfoort in Utrecht. He studied law and divinity at Heidelberg and the Hague, and at the latter settled down as an advocate in 1569. was appointed one of the advocates of the court, and was chosen counsellor and pensionary of Rotterdam in 1576. In his capacity as advocate-general and grand pensionary, B. headed a deputation to England to make a formal offer of the revolted provs. of the Netherlands to Queen Elizabeth. B. now became leader of the republican party, opposed the war policy of Prince Maurice, and brought about a truce with Spain in 1609, which lasted twelve years. He took the side of the Arminians against the Calvinists, who were supported by Maurice. 1616 B.'s influence was increased by his having obtained from James I. the restoration of the cautionary towns, which had been given up to Elizabeth as securities for the money which she had lent the states by the treaty of 1585. In 1618 a national synod, known as the Synod of Dort, was summoned to settle the great struggle between the Arminians and the Gomarites. B. and his friends, Grotius and Hoogerbeets, were arrested, and the trial of the prisoners commenced Nov. 19, 1618. B. was found guilty, and was beheaded in the courty ard of the Hague on May 14, 1619. See Motley's Life of Barne-

1619. See Motley's Life of Barneveldt, 2 vols., 1874.

Barney, Joshua (1759–1818), a
distinguished American naval officer,
was born at Baltimore, N. America.
He entered the naval service,
and at the age of seventeen obtained the commission of lieutenant
in the United States navy. When in in the United States navy. When in active service on board the Saratoga

ship and sent to England. In 1782 he escaped from prison and returned to America, where, as commander of a small ship of war, he captured a brig belonging to the British navy off Delaware. For this he received the thanks of the legislature of Pennsylvania and was promoted to the rank of commodore. He was afterwards sent with despatches to Dr. Franklin in Paris and returned with the news of the signing of preliminary articles of peace between England and America, 1784. When war broke out in 1812, he joined in a land attack at Bladensberg, and received a wound in the leg from which he never re-covered. He died at Pittsburg.

Barnfield, Richard (1574-1627), Eng. poet, b. at Norbury, Shropshire, and spent most of his life at Stone, Staffordshire. He wrote numerous Spenserian sonnets and pastorals. His works include: The Affectionate shepherd, 1594, a pastoral based on Virgil's second ecloque; Cynthia, with certain Sonnets and the Legend of Cassandra, 1595; The Encomion of Lady Pecunia, etc., 1598, which contains two of his best songs, 'As it foll upon a day,' and 'If music and sweet poetry agree.' These were reprinted in The Passionate Bilarin 1500 and in The Passionate Pilgrim, 1599, and

attributed to Shakespeare.

Barnsley, a tn. of W. Riding, Yorkshire, England, on R. Dearne, 12 miles north of Sheffield. It is in a rich coal-mining district, and has manufactures of textiles, glass, iron, needles, paper, wire, and boots and shoes, besides bleaching and dye works. The town dates from pre-Norman times, but contains few old buildings. It was incorporated in 1869, and has a fine public hall, a park of 20 ac., libraries, baths, etc. The B. Canal connects it with Leeds and Wakefield. Pop. 41,086.

Barnstaple, scaport of Devon, England, on R. Taw, 6 m. from the mouth, 34 m. N.W. of Exeter; pop. 14,137. It contains a 14th-century par, church, an old grammar school, endowed in 1649, and occupying part of a ruined monastery, at which the poet John Gay was educated, and some quaint old houses in Bontport Street. The riv. is crossed by a 12th-century bridge of sixteen arches. The silting up of the tidal harbour has robbed the town of its commercial importance, but there are manufs. of lace, gloves, and pottery (Barum ware). It was formerly a centre of broadcloth weaving.

Barnstable, a seaport and post tu. in the United States of N. America, he was placed as prize-master of a cap. of B. co., Massachusetts, is situ-captured British ship. When in an almost sinking condition he was on the S. side of B. Bay, which opens

into Cape Cod Bay. There is a bar trade in grain. flax, across the mouth of the bay, with 6 or tobacco. Pop. 103,800. 7 ft. of water. From 50-60 fishing

and coasting vessels belong to the port. B. is 74 m. S.E. from Boston. Pop. (1900) 4364. Barnum, Phineas Taylor (1810-91),

American showman, born at Bethel, Connecticut; entered a country store in 1823; went into the lottery business in 1825; in 1829 married and went to Danbury, where he ed. The Herald of Freedom. In 1834 he removed to New York and made a considerable profit by exhibiting Joyce Heth. 1841 he bought the American Museum in New York, and soon made it famous by his collection of real and pretended wonders. In 1847 he acted as manager for Jenny Lind, and in 1871 estab. his 'Greatest Show on Earth.

1167 sq. m., and cultivates crops by which the movements of the colof cotton, millet, wheat, and pulse, lapsible chamber are communicated Pop. of the dist. 300,000, of the town to a pointer, which acts as a pen and

48.000.

famous It. architect. See VIGNOLA.

Baroche, Pierre Jules (1802–70), Fr. advocate and minister of state, b. in Paris; became an advocate in 1823; in 1847 entered the Chamber of Deputies as member for Rochefort; in 1848 was elected to the Constituent Assembly; in 1850 became minister of the inof Louis Napoleon, he was appointed president of the Council of State after the coup d'état of 1851, and in 1863 he became minister of justice. At the fall of the second empire in 1870 he

state, on R. Vishvonetre, 248 m. N. of Bombay, with which it is connected by railway. It has fine waterworks, constructed in 1892, and controlled the state of th

cotton, and

Barograph, an instrument by which the variations of atmospheric pressure are permanently recorded. An efficient B. for use in connection with a mercurial barometer is provided by placing a moving strip of photographic paper behind the upper part of the mercury column. The light is concentrated by a lens upon the top of the column, which partly obscures the paper slowly passing behind a narrow slit. The width of the paper unaffected by light thus gives a means of indicating the movements of the mercury column The B. commonly



The district has an area of pattern consists of a system of levers makes records on a chart wound round Barocchio, Barozzi, or Barocchi, a cylinder revolving by clockwork Giacomo da Vignola (1507-73), a once a day or once a week. To be of any value as a trustworthy recorder the different parts of the apparatus should be of high quality and should be frequently tested.

Barometer, instrument an measuring the weight or pressure of The action of a the atmosphere. suction pump in raising water was terior, and in 1851 minister of foreign explained prior to 1643 by the prin-affairs. Having become a partisan ciple that 'nature abhors a vacuum.' Galileo had observed that water could not be raised by the ordinary pump more than about 32 ft., and he recommended the study of the matter to his pupil Torricelli, who made the followfall of the second empire in 1840 ne pupit surfacem, and amount of the det of Jersey, where he died.

Baroda: 1. Native state in Gujarat about 3 ft. long, closed at one end, is div. of Bombay, India. The ter. is completely filled with mercury and very scattered, but the total area is inverted, the open end placed in a somewhat over 8000 sq. m. It is ruled trough of mercury, and the thumb reby a feudatory Mahratta chief known as the Gaikwar. The dist. is very fertile. The mercury at once falls in as the Gaikwar. The dist. is very fertile. The tube to within 10 in. of the level pop. 1,953,000. 2. Cap. city of above state on R. Vishvometre. 248 m. N. above forming what is known as the above forming what is known as the 'Torricellian vacuum.' As mercury is nected by railway. It has fine water-works, constructed in 1892, and con-tains B. College, the palace of the required to support the column of Gaikwar, known as Lakshmi Villas, mercury would support a column of the Naulakhi Wells, the State Library, water of the same diameter and about the Dufferin Hospital, an Anglo-34 ft. high, and that the action of Vernacular School, etc. It has a large the pump and the sustaining of the column of mercury both depended on ; empirically as representing the correct the pressure of the atmosphere acting on one side of the liquid column. The validity of the conclusion was proved

by Pascal, who caused Torricelli's experiment to be performed on the summit of the Puy de Dôme. column of mercury was found to be 3 in. lower, showing that the pressure supporting the liquid diminishes with ascent to higher levels of the atmosphere. Pascal also performed experiments with water, oil, and wine, and found columns supported the heights which were versely proportional tothespecificgravities of the liquids; and that in each case a weight of about 15 lb. of liquid was supported upon one square inch of surface. Any variaheight tions in the Torricellian the column are accounted for by variations in the pressure of the atmosphere, so that such an instrument when suitably fitted up for permanent use, forms an efficient barometer. Cistern barometers.-

cistern B. consists of a glass tube about 33 in. long, containing mercury and dipping into a cistern also containing mercury. It is fastened to a wooden stand, on the upper part of which is a brass scale indicating the height above the average level in the cistern. The instrument is liable to the error of capacity; that is, any diminu-tion in the amount of mercury in the tube raises the level in the cistern, and vice versa, so that the scale does not always indicate the correct height of thecolumn. Inmarine

The simplest form of

FORTIN BAROMETER

Bs, this error is avoided by graduating

height. In Forlin's B., the bottom of the cistern is made of leather, and can be pushed up by means of a screw until the surface of the mercury in the cistern touches the end of a fixed ivory point, which is the starting-point of the scale. The glass tube is encased in a brass cylinder with two slits about 6 in. long on opposite sides to enable the top of the mercury column to be plainly seen. A brass collar with a vernier scale slides over the scale on the brass cylinder; the collar is provided with two slits slightly wider than the slits in the cylinder, and the scale is adjusted by bringing the upper edge of the slits down to the topmost point of the convex curve at the top of the mercury column. It is necessary that the mercury column should be exactly vertical for the scale to give a correct inclination in the column should be exactly vertical for the scale to give a correct inclination in the column should be stated in the state in the above the cartra of the vity in a collar which swings on a horizontal axle pivoted in a surrounding ring, which in its turn swings on an axle at right

port. Another error to which cistern Bs. are liable is due to capillarity, or the reluctance of the surface of the mercury—a liquid which does not 'wet' the glass—to rise to the height determined by pressure. This error may be diminished by using tubes of more than eight-tenths of an inch in diameter.

Syphon barometers.—The simplest form of syphon B. consists of a bent glass tube; one arm is about 36 in long and is sealed, while the other arm is about 8 in. long and is open. Mercury is poured in and worked to the closed end until the long arm and part of the short arm are full. When

nd uppermost, the level in the

in. above the level in the open arm. To make an observation, therefore, the height of the mercury in both arms must be taken, the difference giving the true barometric column. Owing to the subtraction, the error of capillarity disappears, and there is no error of capacity. The

the observati possibility of mercury at the

such disadvantages that the instrument is not in fayour for exact work. In the Hook, or wheel B., the observa-tions are rendered easier by placing a glass float in contact with the merthe scale, not in true inches, but in curr, having attached to it a thread spaces which have been arrived at which passes over a pulley. The

balances the float. The movement of the pulley is communicated to a raduated dial, which also bears such inscriptions as 'stormy,' set fair,' two quantities will indicate the 'very dry,' etc., giving information of doubtful value. In Gay-Lussac's form observed reading.

of the syphon B. the two arms are Variations in barometrical height

for air. In Bunten's improved form the entrance of a small quantity of air is made no of account by the provision of a funnel or 'airbetween the cistern and the top of | the mercury The column. air-bubbles are entrapped in the funnel, and therefore do not find their way

sion of which accurately known. The increase in length of the scale due rise in to \mathbf{a} temp. thus

the reading BAROMETER lower than it

بحلاكم

On the other hand, the should be. mercury also expands on a rise in temp.; its density therefore dimin-ishes, and the height of the column

thread is pressed against the pulley | 0° C. or 32° F. To apply the correcby a small weight which almost tions for errors of capillarity it is necessary to know the internal diameter of the tube and the height of the the pulley is communicated an enviscus, or curved surface. Referenduated dial, which also bears such ence to a table with respect to these

joined by a are of two kinds, periodic and acci-capillary tube. dental. The periodic variations are When inverted those which occur with a fair amount carrying, of regularity at certain hours of the the mercury is day. Accidental variations are those nearly all con-tained in the tions: the direction of the winds, longer arm, and the capillary of water vapour present in the amount the capillary tube prevents the entrance of tions are by far the most important, and are a considerable and are second. tions are by far the most important, and are so considerable as to render observation of any periodic variations very difficult. At the tropics, accidental variations are practically nonexistent, and the daily fluctuations take place with great regularity. The cause of barometrical variations is the difference in the specific gravity of the air occasioned by differences in temp. Thus the B. tends to fall from noon until about four o'clock, as the air becomes lighter from the heating effect of the sun; it then rises until it reaches its maximum at about ten o'clock in the evening. In Western Europe, the warmest and lightest winds are those blowing from the tropics over the Atlantic Ocean; these usually affect the higher reaches of to the Torricel-lian vacuum.

Corrections.—

usually indicates the advent of a In mercurial moist S.W. wind, and therefore the Bs. for accurate possibility of rain. The B. is in this work the scale way useful as a guide to the probable is engraved on weather; in other lats., however, it brass, the co-by no means follows that a falling B. efficient expan- is an indication of rain or stormy weather. Uses of the barometer. - As indicated

above, the B. may be used to foretell weather conditions if the peculiar circumstances of the region are known. It is also used as a hypsometer, or instrument to measure height above sea-PRINCIPLE OF WHEEL tends to make level, as the density of the air for a constant temp. is proportional to the pressure of the superincumbent at-mosphere. The B. is also used in physical experiment and in industry to indicate the pressure of gases in terms of atmospheric pressure. Stansupported by the atmospheric dard atmospheric pressure is greater than at the standard temp., 0° C. or 32° F. The barometrical readings have there-barometrical readings have the readings have the readings have the readings have the reading have the readin provided, indicating the corrections atmosphere means a pressure equivancessary to reduce the readings to lent to 15 pounds on each square inch of surface. It has been suggested that man-Fr. words used to denote hus-the standard pressure should be band and wife in their mutual relation-represented in terms of force as one ship. In heraldry the words denote megadyne per square centimetre, this being equivalent to a barometric height of 29.513 in. at Greenwich, the acceleration due to gravity at that place being taken as 981 17 centimetres per second.

Barometz is a prostrate hairy stem of a fern about which an extraordinary superstition arose. It was called Scythian Lamb, and its shaggy appearance and crouching attitude gave rise to the fable that it was partly animal, partly vegetable, and devoured all plants in its vicinity.

Baron, a word of uncertain origin,

introduced at the Norman Conquest to denote the 'man,' or vassal, of a great lord. Originally the term was of

very wide application, but in England the process of limitation began early. The word was first restricted to those who held land directly from the king who held land directly from the king by military tenure, and by the 13th century the div. of these into 'greater' and 'lesser' Bs. had become com-mon. Magna Charta in 1215 provided that the lesser Bs. should be sum-moned to the Great Council only through the sheriffs, while to the through the sheriffs, while to the greater Bs., i.e. nobility from earls downward, a special summons should be sent by the king. This summons gradually became the badge of peerage, restricting the privilege to the greater Bs. alone. Till this point the position of a B. was that of a holder of the king's land, but the personal note became dominant in 1387. when the creation of Bs. by letters patent was commenced. In that year Richard II. created John de Beauchamp B. of Kidderminster. The practice, however, did not become general until the reign of Henry VI. The creation of Bs. by writ, formerly an ordinary proceeding, is now almost entirely discontinued. The B.'s coro-'s of ound

the retention of the freer use of the word. It designated the chief officials and parliamentary representatives of the five great southern ports in the House of Commons. On the Con-tinent, the title is born by many people on various slender grounds. In France, only those bearing a name of historic note receive much status from their title, and in Germany, too, the title, which is handed down to all the children, has become quite dis-sociated from all idea of possession of land.

was

dges

the

Baron and Femme, or Feme, Nor-

the bearing of the arms of husband and wife per pale, i.c. side by side on the same escutcheon, the husband's always being on the dexter side.

Baronet, a dignity which was created by James I. in 1611, ostensibly to obtain funds for the defence of Ulster. Each B., therefore, was required to supply the funds for keeping thirty soldiers in Ireland (at the rate of 8d. per day) for three years. It was promised that the number of Bs. created should not exceed 200 and it was also stipulated that the honour could only be conferred on those who had a clear revenue of £1000 from lands, and whose family had borne arms at least as far back as his grandfather. It conferred the prefix 'Sir' on the B., and 'Lady,' or 'Dame,' on his wife, and gave him precedence over all other knights, but not over the younger sons of barons, In 1625 Charles I. instituted Bs. of Nova Scotia in Scotland. This was a scheme for the colonisation of that colony, and grants of land were made to the new Bs. who paid 3000 marks for the honour. The number, not to exceed 150, was never completed. In 1629 they received the right of wearing a badge, suspended by an orangetawny ribbon, with a saltire azure, thereon an inescutcheon of the arms of Scotland, surmounted by an imperial crown, round the whole a motto, Fax mentis honestæ gloria.

The creation ceased in 1707. Baronius, Cæsar (1538-1607), famous Roman Catholic ecclesiastical historian, was born at Sora in Naples, the son of Camillo Baroni and Porzia Feboria. He studied divinity and law at Naples, and afterwards at Rome, where he was the pupil of St. Philip Neri, whom he succeeded as superior of the congregation of the oratory, 1593. In 1596 he was made cardinal, and in 1597 librarian of the Vatican: but failed to become pope in 1605 owing to the opposition Spaniards. His most celebrated work, Annales Ecclesiastici a Christo Nato ad Annum 1198 (12 vols. 1588-1607), was written in reply to the Protestant work entitled Magdeburg Centuries, and its object was to show that the doctrine of the Church of Rome was doctrine of the Chirch of Notice was identical with that of the early Christian Church. The Annales was continued by Raynaldus; by Bzovius to the year 1572 (9 vols. fol. 1616-72); and there is another extension to 1639 (2 vols. fol. Paris, 1639). The last ed. of this work is that of 1864-83. Another work of B. worthy of note is Martyrologium Romanum. 1586. According to Mazzuchelli (Scrillori

in print and manuscript.

Baron of Beef, a large piece of beef consisting of both sides of the back, a double sirloin, sometimes weighing 100 lbs. This huge joint is only served at great public entertainments, not-ably at civic feasts at the Guild-hall, London. The origin of the name is uncertain, but legend ascribes it, as well as Sir Loin, to a jest of

Charles II.

Barons' War, The, see Montfort.

Baroque (from Portuguese, 'a rough pearl'), originally restricted to the jeweller's trade, but now chiefly used in architecture. The term signifies the extravagant, capricious, incongruous, but sometimes picturesque, ornament of the late Renaissance. It has much the same meaning as rococo.

Baroscope (Gk βάρος, pressure, and σκοπέω, to look) is a kind of barometer which indicates only variations in the atmospheric pressure, but does not, as the ordinary barometer does, supply any quantitative data.

Barosma, Buchu, or Bucku, is a name of a genus of Rutaceæ found in S. Africa as an evergreen shrub. The leaves are employed in medicine as a

diuretic.

Barotac, or Boroton, Nuovo, a small ., situtn. of Par ated in a Pop. 12,000.

Barotse Land, a former kingdom of Central Africa, in the Upper Zambesi. It now forms the district of Northwestern Rhodesia, the seat of administrative gov. being at Lialui. The dist. is well watered and fertile, and supports a large population of Bantus. There is a postal service from Lialui to Buluwayo.

Barousse, a valley in the Hautes-Pyrénées, France.

Barpeta, a tn. of British India, Assam, Kámrúp dist. Pop. (chiefly Hindus) about 9500.

Barque, or Bark, originally any small ship, but now more particularly a three-masted vessel, with fore and main mastssquare-rigged, but mizzenmast rigged fore-and-aft. Formerly they were small vessels only, but now! they often exceed 3000 tons.

Barquisimeto, cap. city of state of Lara, Venezuela, on B. Riv., 165 m. S.W. of Caracas. It is a bishop's see,

d'Italia, fol. Brescia, ii. pt. i. p. 387), 18 m. S.W. from Strasburg, and is there are nineteen works of Baronius noted for its mineral baths. Pop. 5700.

> Barr, or Barra, a petty kingdom of Western Africa, at the mouth of the Gambia. This and some neighbouring kingdoms on the Gambia were founded by Amari-Sonko, a Man-dingo warrior, apparently for the purpose of facilitating the operations of the traffic in slaves. His descen lants still reign. The soil is very fertile, except where marshes occur, and is well cultivated.

> Barr, Archibald, Scotch inventor, born in Renfrewshire, 1855. Educated at Paisley and Glasgow University, where he has been regius professor of civil engineering and mechanics since Invented with Stroud naval 1889. range - finders, adopted by British Admiralty and foreign govs.; also various range-finders for fortress and field service, electrical fire control instruments for use between fire control positions and gun stations of warvessels(adopted by British Admiralty), and a pump for producing high vacua. The inventors have works expressly designed and equipped for manufacturing their scientific machines and instruments at Anniesland, Glasgow. B. has written papers and addresses on engineering subjects.

> Barr, Robert (1850-1912), English novelist, b. in Glasgow. Educated at Normal School, Toronto; headmaster of Central School, Windsor, Canada, till 1876. Then joined editorial staff of Detroit Free Press, his contributions to which were signed 'Luke Sharp.' In 1881 B. came to England, founded the weekly Free Press, and in 1892 founded the Idler with Jerome K. Jerome, remaining co-editor till 1895. Among his best works are: In the Midst of Alarms; A Woman Intervenes; Countess Tekla; From Whose Bourn; Revenge; The Strong Arm; The Mutable Many; The Unchanging East, 1900; The Tempestuous Petticoat, 1905; Stranleigh's Millions, 1908; Cardillac: Sword-maker, 1910.

Barra, a small tn. about 3 or 4 m. E. of Naples. Pop. 12,000.

Barra, a small is. of Inverness-shire, Scotland, near the southern extremity of the Outer Hebrides. Historically it is famous as the scene of the victory of Robert Bruce, 1308. Pop. 2500.

Barrackpur, a tn. of dist. Twenty four Parganas, Bengal, India, on R. Hugli, 15 m. N. of Calcutta. It is a and contains a college, cathedral, Hugh, 15 m. N. of Calcutta. It is a gov. palace, etc. It stands in a fertile European health resort and country agricultural and stock-raising dist., residence of the viceroy. There were and does a large trade through its sepoy mutinies here in 1824 and 1857. port, Tusacas. Pop. 31,476. The native name of 'Charnak' Barr, a small German tn. situated reminiscent of Job Charnock, in the gov. of Alsace-Lorraine. It is founder of Calcutta. Pop. 18,000. The native name of 'Charnak' is

Barracks, a permanent residence name, Bolivar, Colombia, on Magda-for soldiers, sailors, or police. For an lena R., near its mouth, 3 m. from infantry battalion, 20 ac. of ground is its seaport, Sabanilla, and 18½ from required, for cavalry and artillery about 30 ac. The B. include parade ground and open spaces for drill and manœuvres. B. are generally built in blocks, to accommodate two companies each, and are divided into three parts, viz. officers' quarters, men's quarters, and quarters for married soldiers and sergeants. The officers' mess usually consists of a dining-room, club room, billiardroom, and offices. Each officer has his own private rooms, the number varying according to rank, and special accommodation is made for married Each company has eight barrack-rooms, containing from ten to twenty beds, two sergeants' rooms, and two store-rooms, besides offices and lavatories. The married soldiers usually have separate houses each. with rooms varying in number according to the number of their children. The soldiers are catered for by the Regimental Institute, which consists of the canteen and the recreation establishment. Reading-rooms, coffee billiard-rooms, gymnasiums, and other recreation rooms are provided in B. to make the life as comfortable and attractive as possible. There are separate buildings, used as hospitals, and school-rooms for the children.

Formerly accommodation was not provided for soldiers, who were accordingly billeted on the people. It was not till the end of the 18th century that permanent buildings for soldiers came to be built. Great sums of money have been voted from time to time for the construction of B. and the improvement of men's quarters. The Army Sanitary Committee is a permanent advisory body, and there is a Director of Barrack Construction at the head of a department of the

War Office.

Barraconda, see GAMBIA Barracuda, Barracouta, or Barra-coota, a large pike-like fish of the family Sphyrænidæ and order Tele-ostei. Bs. are carnivorous, and some varieties are esteemed as a food, though at times they are poisonous.

Barrafranca, a tn. of Sicily, situated 1470 ft. above the level of the sea, 10 m. S.E. of Caltanissetta, in the prov. of that name. Pop. 10,878.

Barra Manza, a tn. of Brazil, on the r. b. of the Parahiba do Sul, 70 m. N.W. of Rio de Janeiro. Pop. 12,000.

Barramunda, a name sometimes applied to the Ceratodus, a dipnoid fish of the family Sirenoidei with a Its haunts are the rivs. single lung. of Queensland.

Barranquilla, cap. of prov. of same

its seaport, Sabanilla, and 181 from the port Puert at the head of

riv., which is into the sea, the tn. has a busy steamship traffic, and is rapidly growing, though it suffers from periodical floods. Pop. 40,000.

Barrantes, Vincente (1829 - 98).Spanish poet and publicist, born at Badajos, but later removed to Madrid, where he entered literary and political life, holding several appointments in Spain and the Philippines. In 1872 he was made a member of the Spanish Academy. His works, for the auda-Academy. The works, for the addactity of which he was sev. times fined, include Siempre Tardé, 1851; Juan de Padilla, 1855-6; La Viuda de Padilla, 1857; Narraciones Extramchas, 1872-3; Cuentos y Leyendas, 1875; Guerras Piraticas de Filipinas, 1878.

Barras, Paul Jean François Nicolas, Comte de (1755-1829), a member of the Fr. Directory, and an important figure in the Fr. Revolution, was born at Fos-Emphous in Var, of an anct. noble family. In 1775 he entered the army, and went twice to India. When the Revolution commenced he became one of its warmest partisans, and was a member of the Jacobins Club from its commencement. Representing Var in the National Convention, he voted for the death of Louis XVI.; and he also took an active part in the siege of Toulon. He opposed Robespierre, and was mainly instrumental for his downfall. On the 13th Vendémiaire (Oct. 5, 1795), the Convention appointed B. general-in-chief for the second time. and his success on this occasion was chiefly owing to Bonaparte, to whom he had confided the command of the artillery. The anarchists were put down and B. was nominated one of the five members of the Directory. On the 18th Fructidor (Sept. 4, 1797), he was again invested with dictatorial powers, and transported many of his opponents. The affair of the 30th Prairial (May 18, 1799), however, shook the foundation of the Directory. Bonaparte, seconded by Sieves, effected the revolution of the 18th Brumaire (Nov. 9, 1799), and was made first consul. After this the power of B. was annihilated. Implicated in a conspiracy, he was exiled to Rome, but returned to Paris in 1814. In 1815 he again left Paris, but returned on the disembarkation of Napoleon and took up his residence at Chaillot. See his Memoirs, pub. by Duruy, 1895. Barratry, derived from an old Fr.

word meaning to barter or cheat. The offence in English common law is one of the king to riot. The offence against cans. In 1646 he was appointed England, but is the term used to describe the crime of a judge who barters justice for money, i.e. is guilty of corrupt practices. The offence of B. is also known in marine insurance: in that case it is an offence by the masters or crew of a ship which is to the detriment of the owners or insurers of that ship. It is usually insured against in marine insurance policies.

Barraux, a vil. in the Fr. dept. of Isère, in the arron. of, and 23 m. from, Grenoble. On the Isere, upwards of a lat the end of the 1sth cermile from B., is B. Fort, built by first used in the street. Emmanuel of Savoy in 1596 and caphas a wooden cylinder fur Pop. of vil. tured by Lesdignières.

1200.

ascribed.

Barre, a banking tn. of Vermont, Washington, U.S.A., 6 m. from Montpelier. It is famed for its granite-quarries. Pop. about 7000.

quarries. Pop. about 7000.

Barré, the name given to a group of S. American tribes of Arawakan stock, who occupy the country round the Upper Rio Negro, in Northern Brazil, across the Cassiquiari, Gulania, Atabo as far as Venezuela. They are an independent, progressive race, and are thought to be absorbing the neighbouring tribes. Their language has spread throughout a wide region.

Barré, Isaac (1726-1802), British mania. The fourth is a volcanic is. officer and politician, born in Dublin, in the Bay of Bengal, situated to the the son of a Fr. refugee; served under E. of the Andaman Islands. Wolfe, and was wounded at Quebec in Barrenness, see Sternitry. 1759; entered parliament in 1761, and consistently defended the rights of the colonies, notably in a famous speech against the Stamp Act in 1765. Britain. It is a self-pollinated plant, He was the originator of the term with nectaries, and the seed has a 'Sons of Liberty' applied to the membranous aril.

Americans. In 1790 he retired owing Barres, Maurice (b. 1862), a Fr. nericans. In 1790 he retired owing Barrès, Maurice (b. 1862), a Fr. blindness consequent upon his man of letters, was born at Charmes, wound. He is one of those to in the Vosges. After studying at old wound.

large wooden vessel for holding liquids or solids, with circular heads. The term is also given to various measures. A barrel of beer contains 36 imperial gallons, of wine 311 gallons, of butter 224 pounds, etc. In the U.S.A. flour and beef are sold in the same way, a B. of flour containing 196 pounds, and one of beef 200 pounds.

Barrelier, James (1606-73), a distinguished botanist, was b. in Paris. He was educated for the medical pro-

of stirring up or inciting the subjects; took the yows of the order of Dominiof the king to riot. The olichce against cans. In 1016 fie was appointed law is only actionable when committed frequently, and at least three preaches of the law must be proved traversed Southern France, Spain, and against the offender. In the case of a Italy. During his travels he collewyer or solicitor offending in this lected plants, of which he made drawway he is by the law of England unable to practise further. Theofience in Scotland is not the same as in his work on botany, but died in 1673. After his death his collections were dispersed, and some were burnt. The copper plates, however, were col-lected and published by Antoine de Jussieu, who supplied descriptions in the place of those which had been destroyed.

Barrel-organ, a portable mechani cal musical instrument of monotonous tone and limited number of tunes. Provided with hymn-tunes, it was formerly used in some churches, but has been ousted by the harmonium; at the end of the 18th century it was The organ has a wooden cylinder furnished with pegs or staples, which, when revolved, opens a series of valves to admit the air to a set of pipes, and thus produces the sounds.

Barren Flowers are more commonly They bear known as male flowers.

stamens but no carpels.

Barren Island is the name given to four different islands in various parts of the world. The first is a sandy is off the S. shore of Long Is., King's co., New York. The second is an is. on the W. coast of Placentia Bay, off Newfoundland. The third is one of the group known as Hunter Islands, off the north-eastern point of Tas-mania. The fourth is a volcanic is.

Barrenwort, or Epimedium alpinum, is a species of Old World Berberidaceæ which is cultivated in

whom the Letters of Junius have been Nancy he went in 1882 to Paris, and adopted the journalistic profession. He was elected a deputy for Nancy in 1889, and sat in the chamber till 1893. He is an individualist by conviction, and repudiates all social discipline. His works are obscure in many places, and possess many mannerisms, but his analysis is very delicate, and his style, though often affected, is pure. His works include L'Ennemi des lois, 1893; Le Cullede Moi, 1893; Une journée parlementaire, 1894, etc.

Barret, George (1732-84), an Irish fession, but abandoned it, and in 1635 landscape painter. In 1764 he obSociety of Arts, London; was one of the original members of the Royal Academy, founded 1768; and towards the close of his life was master painter to Chelsea Hospital. His landscapes are bold and natural in design, but his colouring is somewhat peculiar

his colouring is somewhat pecunar and heavy. He painted also in water-colours, and executed a few etchings.

Barrett, Lawrence (1831-91), an American actor, b. at Paterson, N.J. He made his first appearance on the boards at Detroit, Mich., as Murad in The French Spy in 1853. In 1857-8 he was associated with the brilliant actor Edwin Booth; subsequently he became the leading member of his company, and worked with him from 1887 till his death. B. was a versatile actor and had a high intellectual understanding of his art. His best part was Cassius; he was also very successful as Richelieu and Lanciotto, and took the leading parts of many Shakespearean plays. He wrote Edwin Booth and his Contemporaries, He wrote

Barrett, William (1733-89), an Eng. surgeon and antiquary, was born at Notton, Wiltshire. At the age of twenty-two he passed his examination for a surgeon, and settled down to practise in Bristol. He determined to write a history of the city. This work is famous because of the number of forgeries with which Chatterton, the marvellous boy, supplied B., and which the latter accepted without question. He was made a fellow of the Society of Antiquaries on Nov. 9, 1775, before the publication of his book. This appeared in 1789, on ms dook. This appeared in 1789, as a quarto volume of over 700 pages, with the title, 'The History and Antiquities of the City of Bristol, compiled from original records and authentic manuscripts. in public offices and private hands, illustrated by copperplate prints. By William Barrett, surgeon, F.S.A.' The book was received with such a chorus of ridicals. ceived with such a chorus of ridicule and obloquy that B. was overwhelmed, and died at Higham, in Somerset, in the following September.

Barrhead, a tn. of Renfrewshire, Scotland, 6 m. S. of Glasgow by rail. It contains cotton-mills, calico-printing works, bleaching and dyeing

works, engineering works, and shawl-weaving mills. Pop. 9855. Barri, Giraldus de, or Sylvester Giraldus, see GIRALDUS CAMBRENSIS. Barrias, Louis Ernest (1841-1905), a Fr. sculptor, brother of Felix Joseph B., was b. at Paris. He studied at first under Leon Cogniet, but recognising that sculpture was his true metier, he worked under Carelier and Jouffroy,

tained a 50-guinea premium from the the Prix de Rome in 1865, and a Society of Arts, London; was one of medal at the Salon of 1870. His two medal at the Salon of 1870. His two works for the Salon of 1872, one in marble, the other in bronze, were of such excellence that he was awarded a first-class medal. He was awarded a first-class medal. He was awarded a medal of honour and a decoration for his piece at the 1878 Salon, entitled 'The First Funeral,' representing Adam and Eve bearing the body of Abel. In 1884 he was created a member of the Academy of Fine Arts.

Barricade, a military term used for any obstruction formed to cheek the

any obstruction formed to check the advance of an enemy. They may be constructed of palisades and earth or sand-bags, with loop-holes out for firing, but as they are generally thrown up in haste any material to hand, such as loaded carts, hears of stones, planking, felled trees, etc., is used. In 1358 Bs. were set up in the streets of Paris against the Dauphin Charles, and again in 1588 Henry VI.'s troops were prevented from entering Paris by the Bs. They were used again in Paris in the Revolutions of 1850 and 1848. There was a B. of 1850 and 1848. There was a B. erected by Londoners in 1821 in order to change the route of Queen Caroline's funeral. On board ship, a B. is a strong wooden rail, supported by stanchions, the upper part containing rope-netting stuffed with full hammocks to prevent the effect of small shot in an action.

Barrie, the cap. tn. of Simcoeco., Ontario, Canada, on Kempenfeldt Bay, L. Simcoe, 64 m. N.W. of Toronto. It is a railway centre, and has manufs, of carriages, wool, leather,

and machinery. Pop. 6000.

Barrie, James Matthew, novelist and dramatist, b. 1860, at Kirriemuir. novelist in Forfarshire, was educated at Dumfries Academy and Edinburgh University. After some experience as a journalist in Nottingham he came to London and contributed, among to London and contributed, among other papers, to the St. James's Gazette, British Weekly (as 'Gavin Ogilvy'), National Observer, and Speaker. In 1887 he pub. his first book, Better Dead, and in the next year Auld Licht Idylls presented an idealisation of his native vil. as 'Thrums,' with its life and humour. The theme is not quite denned in The theme is not quite dropped in When a Man's Single, primarily a humorous account of journalistic life, and it is again the chief interest in A Window in Thrums, 1889. In 1891 came My Lady Nicotine and The Little Minister, which excellently showed Mr. B.'s whimsical humour, pathos, and control of action and dialogue. Margaret Ogilvy, 1894, was followed by Sentimental Tommy and Tommy and Grizel, 1900. His and went through a course at the dramatic career began with Walker, School of Fine Arts. He was awarded | London, in 1892, and in collaboration

with Conan Doyle he then wrote Jane | Life of Addison); and at the High Annie. In 1895 came The Profes- School, Edinburgh, in 1595 there was Annie. In 1895 came The Professor's Love Story, in 1897 a dramatisation of The Little Minister, and in 1900 The Wedding Guest. After this, two notable successes were The Admirable Crichton and Little Mary. Christmas 1904 was marked by the production of the children's play, Peter Pan, which shows many of the author's most charming and characteristic gifts. In 1905 came another play of the same type, Alice-sit-by-the-Fire, and in 1908 What Every Woman Knows followed. Among his The Twelve-Pound one-act plays, The Twe Look is perfect in style and deservedly popular.

Barrier

Barrier, from the Fr. word barrière, in fortification, is a term applied to a chain of military posts protecting the frontiers of a country. It signifies, also, a wall of strong timbers enclosing an area (stockade), or protecting a passage. In some part of a B. is a gate usually formed of two parts, opening in the middle, and frequently musket-proof, being made of strong timbers in vertical and horizontal

timbers in vertical and horizontal positions, with diagonal braces.

Barrier Act, an act passed by the General Assembly of the Church of Scotland in 1697 providing that any proposed change in the church laws must be sanctioned by a majority of the Presbyterians. The object of this converse to cover against basty legislaact was to guard against hasty legisla-

tion in the church.

Barrier Reef, The Great, see GREAT

BARRIER REEF.

Barrier Treaty, the name given to three treaties which were drawn up during or immediately after the War of the Spanish Succession. It was essential to the Dutch that, in order essential to the Dutch that, in order to resist possible Fr. aggressions, they should have control of the 'barrier' fortresses of the Netherlands. The chief fortresses which the Dutch de-manded were Ypres, Tournai, Mons, Charleroi, and Ghent. In return for a recognition of the Protestant and Hanoverian succession Great Britain signed a treaty in 1709 by which she undertook that the Dutch should be provided with an adequate barrier of fortresses in the Netherlands. The The number of fortresses was reduced by the second treaty to practically those already named (1713). In the treaty which was signed in 1714 by the Emperor and Louis XIV, the Dutch received their barrier fortresses.

mencement of the vacations. Addison was the leader of a B. at the Grammar

a serious B. in which a magistrate lost his life whilst endeavouring to force an entrance. In the statutes of Witton School, near Northwich, in Cheshire, founded by Sir John Deane, 1558, the observance of the custom by the scholars is directed.

Barrington, The Honourable Daines 1727-1800), the fourth son of John Shute B. He was called to the bar in 1749, and made a puisne Welsh judge in 1757. In 1785 he gave up all public employments except the place of commissary-general of the stores Gibraltar. Of his writings the most important is Observations upon the Statutes, chiefly the more ancient, from Magna Carta to the 21 Jac. I. c. 27, Magna Caria to the 21 Jac. 1. c. 27, first pub. 1766. Others are: Researches respecting a North-IVest Passage; papers on local antiquities in the Archæologia; and essays in the Philosophical Transactions. Many of his periodical publications were pub. in 1781 under the title of Miscellanies on various Subjects.

Barrington, George (properly Waldron, George) (1755- c. 1840), Irish author, born at Maynooth, Kildare; joined a band of strolling players in 1771, and later became a professional thief in London, moving in the highest circles. His most noted theft was that of a snuff-box worth £30,000 from Prince Orloff. In 1790 he was transported to Botany Bay, but was released after two of his seven years' sentence, and became superintendent sentence, and became superintendent of convicts and later High Constable at Paramatta, N.S.W. His works include: A Voyage to Botany Bay, 1801; The History of New South Wales, 1802; The History of New Holland, 1808, and a prologue to a convict representation of Young's tragedy The Revenge, containing the famous line 'We left our country for our country's good.'

Barrington, John Shute, first Vice.

Barrington, John Shute, first Viscount (1678-1734), English polemical writer and politician, born in Hert-fordshire; called to the bar in 1699; was one of the commissioners sent to Scotland to gain the favour of the Presbyterians for the Union; became a commissioner of customs in 1708, and entered parliament in 1715. 1720 he was made baron and viscount in Ireland. He was expelled from parliament in 1723 for his connection received their barrier fortresses.

Barring-out, a practice formerly include: Essay upon the Interests of common in schools, by which the boys barred the doors of the school against barred the school against barre Sacra, 1725.

Barrington, Samuel (1729-1800),

School, Lichfield, 1685 (see Johnson's British admiral, son of Viscount B

Entered the navy under Lord George Gordon in 1740; became a lieutenant in 1745; commanded the sloop Weasel in 1747; and later in that year, in the Bellona, captured the Fr. 1880. Seeing that his ideal of a union Duc de Chartres. He served in the Mediterranean and on the Guinea Coast; in 1754-5 accompanied Companied modore Keppel to N. America; in 1757 served under Sir Edward Hawke in the Basque Roads Expedition; and in 1761 under Keppel at Belle Isle. In 1759, while commanding the Achilles, he captured the Comte de St. Florentine. He was made commander-in-chief in the West Indies in 1778, where he defeated the Fr. under D'Estaing. He was in the action off Grenada in 1779, and was second in command to Lord Howe at the relief of Gibraltar in 1782. He was made an admiral in 1787.

Barrington, Shute (1734 – 1826), Eng. churchman, sixth and youngest son of John Shute, Viscount B., was born at Becket, in Berkshire. He was educated at Eton and Merton Col-lege, Oxford. He was ordained in lege, Oxford. 1756, and a 1756, and appointed chaplain-in-ordinary to George III. in 1760. He was made canon of Christ Church in 1761, and took his D.C.L. in the following year. He was appointed a canon of St. Paul's in 1768, and bishop of Llandaff in 1769, of Salisbury in 1782, and of Durham in 1791. He was a strong defender of the Protestant establishment, and heartily opposed to the acquisition of any political power by the Roman Catholics. He was twice married, but left no children.

Barrington, William Wildman (1717-93), an Eng. politician, eldest son of John Shute, Viscount B. After making the 'grand tour,' he returned to England in 1738, and in 1740 was unanimously elected M.P. for Berwick-on-Tweed. In 1746 he formulated a plan for a national militia, and in the same year took his seat in the Irish House of Lords. He was one of the lords commissioners of the Admiralty in 1746, in 1754 M.P. for Plymouth, and in 1755 a member of the Privy Council. He was secretary of war in 1755, chancellor of the exchequer in 1761, treasurer of the navy in 1764, and in 1765 secretary of war again. He was joint post-master-general from January to April 1782, and retired on a pension of £2000 per annum.

Barrios, Justo Rufino (1835-85), an American politician, was born at San Lorenzo, in Guatemala. He took part in the unsuccessful liberal insurrection under Serapio Cruz against Cerna,

bring about his aims by force. was, however, defeated and killed at Chalchurapa.

Barrister

Barrister, a member of that branch of the law which has the exclusive right to practise and be heard in the superior courts of law in England and Ireland. For the Scottish equivalent branch see ADVOCATE. right to practise at the bar is confined to the four Eng. Inns of Court (q.v.), viz. Lincoln's Inn, Inner and Middle Temples, and Gray's Inn, and to the Ring's Inns in Ireland. A student is 'admitted' to an Inn by passing a preliminary examination (excused for those who have passed certain University examinations), and paying fees. He then 'keeps' twelve terms by eating dinners in the hall of his Inn, six in each legal term, three for university members. On passing the examinations of the Council of Legal Education and paying fees he is called to the bar' by the benchers of his Inn, who may refuse to admit. They also may 'disbar' or expel a barrister for misconduct. Clergymen, women, solicitors, or account ants in practice may not be admitted. On his call or before, a barrister usually passes a year as pupil in the chambers of a practising barrister, and if he intends to practise at the common law bar usually joins a circuit (q.v.). Before undertaking a case he must be instructed in a 'brief' (q.v.) by a solicitor, but in criminal cases he may be engaged directly in open court. He drafts 'pleadings' (q.v.), gives opinions on the case, advice on evidence, etc., and it is his especial and peculiar function to conduct the case in court. A barrister is not answerable for anything said by him in court, so long as it is suggested by his instructions and is relevant to the case. He may not sue for his fees, but is not obliged to return them though he cannot attend the court. He is not liable for negligence. attorney- and solicitor-generals are leaders of the bar, king's counsels, K.C.'s, are appointed by the lord chancellor on application; they are called 'within the bar' and are said to 'take silk,' their gown of special form being of silk for dress occasions, when they also wear a full bottomed wig; a K.C. does not accept conveythe president of Guatemala, in 1867-69. He was obliged to flee to Mexico, but in 1871 he returned and defeated take pupils in his chambers. The

ordinary barrister, or junior bar, wears a 'stuff' gown. For counsel For counsel appointed to revise the lists of parl. voters see Revising Barrister.

Barroccio, Federigo (1528-1612), an Italian painter, b. and d. at Urbino, the son of an éminent sculptor. Hé first studied under Battista Venezano, then under Cardinal della Rovera at Rome, whose palace he ornamented with sev. frescoes. After four years he returned to Urbino, and painted a picture of St. Margaret for the Confraternity of the Holy Sacrament. At the invitation of Pope Pius X. he assisted in the embellishments of the Belvedere palace, on which Zucchero was also engaged. Here he executed the Annunciation in fresco on one of the ceilings, and a picture of the 'Holy the ceilings, and a picture of the 'Holy Virgin with the Infant Saviour, with Saints.' His other works include an altar-piece of the 'Taking down from the Cross' in the cathedral of S. Lorenzo at Perugia; a picture of the 'Last Supper' for the Chiesa della Minerva: and the 'Visitation of the Virgin Mary to Elizabeth' and the 'Presentation in the Temple' for the Chiesa Nuova. Chiesa Nuova.

Barrois, Le, was an ancient div. of France in Lorraine, which now forms almost the whole dept. of Meuse. The prin. tns. were Bar-le-duc, the cap., Commercy, Saint Mihiel, and Port à Mourson. It is well wooded, and noted for its wines.

Barros, João da (1496-1570), a Portuguese historian. In 1522 he was sent as governor to St. George da Mina, on the Guinea Coast; in 1525, recalled to Lisbon, he was appointed treasurer to the colonial dept., and afterwards agent-general for colonies. While he held this office he composed his great work, Asia Porlugueza, or the history of the discoveries and establishments of the Portuguese in the Indian seas. He is considered by the Portuguese their best historian, and is therefore called the 'Livy of Portugal.'

Barrosa, a vil. of Andalusia, Spain, on the coast, 16 m. S.E. of Cadiz. The scene of the victory of General Graham over the Fr. under Victor in March 1811, being one of the first Eng. victories in the Peninsular War.

Barros-Arana, Diego, a Chilian historian, was born about 1824. He was professor of geography at the university of Santiago, and Chilian minister at Buenos Ayres. He formed one of the commission which studied the delimitation of the frontier be-ft. tween Chili and the Argentine Re-ru-public. His works, which are in ac-Spanish, include: General History of the Independence of Chili, 1854-7; Elements of Physical Geography, 1881; General History of Chili, 1884, etc.

Barroso, Miguel (1538-90), Spanish painter, born at Consuegra. According to Palomino he was a pupil of Becerra, and distinguished both as architect and painter. Employed by Philip II. in the Escurial, he painted a number of frescoes in the chief cloister there, including Resurrection, 'Christ appearing to the Apostles,' Descent appearing to the Apostles, 'Descent of the Holy Ghost,' St. Paul Preach-ing.' In 1589 painter to the king. See

Stirling, i.; Meyer, Künst. Lex. iii.
Barrot, Camille Hyacinthe Odilon (1791-1873), Fr. orator and statesman, was b. at Villefort (Lozère). He studied law at Paris, and was called to the bar there. Though remaining a supporter of monarchy, he was dissatisfied with the restoration gov.; in 1827 he joined the 'Aide-toi 'association. He took a prominent part in the revolution of July 1830, being a member of the Municipal Commission of the Hôtel de Ville, and one of the three commissioners appointed to conduct Charles X. out of France. He was then appointed prefect of the Seine dept. He opposed the extreme republicans and advocated a constitutional monarchy on democratic lines. In the movement of 1847, which culminated the next year in revolution, he was again prominent, being one of the great speakers at the 'ban-quets.' The revolution came as a surprise to him, and he acquiesced in the republic, and accepted office, but he was soon dismissed. After the he was soon dismissed. After the coup d'étal of 1851, he retired into private life, deeply discouraged at the failure of his schemes on all sides. After the fall of the empire, Thiers nominated him President of the Council of State, but he died after

having held this position only a year. Barrow (Sax. beorg, hill or hillock), the name given to the burial mounds erected by the primitive peoples over the remains of their dead. The custom was widely spread, and remains of Bs. have been found all over Europe, in N. Africa, Asia Minor, various other parts of Asia, and N. America. The structure, size, and internal arrangement of the Bs. differ widely. They were made of earth or stones, and the ground-plan was oval, round, or oblong. The long Bs. of the Stone Age in Great Britain contained one or more chambers entered by a passage under the higher and broader end of the B. They were from 200 to 300 ft. in thength, with a width of from 60 to 80 ft. In Ireland round Bs. were the rule. The practice of B. burial was accompanied both by cremation and inhumation. The introduction of cremation in the Stone Age is thought by some to have introduced the vogue of smaller Barrows.—a distinguishing feature of the Bronze Age, in which cremation was common. In the Iron Age the size again becomes larger. With the remains were frequently buried the favourite animal and familiar possessions of the departed. A vivid account of the building of the B. of Hector is given in the Iliad, and Herodotus gives a detailed description of a similar custom in connection with the burial of the Scythian chiefs. Amongst the Vikings it was a custom to place the dead man on the deck of his ship and erect the B. over it. The largest Eng. example is Silbury Hill, 130 ft. high. See Greenwell's British Barrows, Petrie's Histories and Antiquities of Tara, Squier and Davis's Ancient Monuments of the Mississippi Valley.

Valley.

Barrow, a riv., Ireland, rises on the N.E. side of Slieve Bloom Mts., Queen's Co., flows E. to border of co. Kildare, then S. With the Suir, which it joins 29 m. from the sea, and the Nore, which flows into it 2 m. above New Ross, it forms the estuary of Waterford harbour. Length 119 m. Navigable for vessels of 300 tons as far as New Ross, for barges up to Athy. Here it joins the Grand Canal.

Barrow, Cane. the most northerly

Barrow, Cape, the most northerly point of Alaska. There is a gov.

station on the cape.

Barrow, Isaac (1630-77), divine and mathematician, son of the linen-draper to Charles I., educated at Charterhouse and Felsted; entered Peterhouse College, Cambridge, 1643, under his uncle who was a fellow. The Presbyterians having taken possession of Peterhouse, B. removed to Trinity College, Cambridge. As a boy his prin. College, Cambridge. As a boy his prin, delight was fighting and his habits negligent; but here he worked hard, and became a fellow in 1647; took his M.A. 1652, and was made D.D. by royal mandate in 1670. He first intended to study physic but turned to astronomy and geometry. Meanwhile he studied the classics diligently and was recommended for the chair of and was recommended for the chair of Gk. at Cambridge; he lost it, being suspected of Arminianism. Then he went abroad (1655-59) through France and taly to Constantinople, and thence to Venice, Germany, Holland, and home again. In 1660 he was chosen Gk. professor, and in 1662 Gresham Professor of Geometry, but this he resigned on his appointment to be Lucasian Professor of Mathematics, 1663. This he resigned (1669) in favour of his great pupil Isaac Newton. In 1672 Charles II. (whose neglect of him he celebrated in his well brown I at 1672. neglect of him he celebrated in his flour, grain, coal, etc., and exports, well-known Lat. lines) appointed him master of Trinity College, and he exerted himself to form a library, the need of which had long been felt.

He died young considering his reputation, at the age of forty-seven. He never married, and lived a life of constant resignation of profit upon principle. His two mathematical works were Lectiones Optica and works were Lectiones Optica and Lectiones Geometricae, both of which were highly esteemed by Newton. Among his theological works are: Expositions of the Creed; The Lord's Prayer; Decalogue; and Sacraments. His treatise on the Pope's supremacy is still admired as a specimen of contraverse.

is suff admired as a specimen of con-troversy. An edition of these was edited by Napier with a memoir by Whewell, 9 vols., 1839. Barrow, Sir John (1764–1848), diplomatist, writer, and patron of Arctic exploration, was a native of Dragley Beck, Lancashire. He became a time-keeper in a Liverpoel iron-foundry, but managed to edu-cate himself in other directions. After a trip to sea in a Greenland whaler he became a teacher of mathematics at became a teacher of mathematics at an academy in Greenwich. Here he was fortunate enough to secure the interest of Sir George Staunton, who obtained for him (1792) the post of secretary to Lord-Macartney, the first British ambas, to China. In this position he distinguished himself by his mastery of the Chinese language and his close that of Chinese latestare. his close study of Chinese literature and science. On the appointment of Macartney to the governorship of the Cape of Good Hope, B. took an active part in the settlement of the affairs of that colony. From 1804-45 he was second secretary of the Admiralty. He was made a baronet in 1835. He He was made a baronet in 1835. He was a fellow of the Royal Society, and one of the chief founders of the Royal Geog. Soc. His publications include: Travels in Southern Africa, 1803; Travels in China, 1804; A Voyage to Cochin-China, 1806; History of Voyages into the Arctic Regions, 1818; Voyages of Arctic Discovery, 1846; and an autobiography. 1847. Discovery, 18 graphy, 1847.

Barrow-in-Furness, seaport, manufacturing tn., and municipal, co., and parl. bor., N. Lancashire, 9 m. S.W. of Ulverston, 268 m. N.N.W. of Lonor Urverston, 208 m. N.N.W. of London. Here are situated the famous shipbuilding yards of Vickers Sons and Maxim, I.td., the Bessemer steel works, and other large industries connected with iron and copper, which are found in considerable quantities in the vicinity. There are also jute and that factories engineering charactering and flax factories, engineering shops, paper and pulp works, etc. There is an active trade at the port in imports of cattle, general merchandise, timber,

covery in 1840 of hæmatite ore at works are: Boyle Lecturez, 1876, 1877, Park, near B. The establishment of 1878; Life of Sir Charles Barry; Intromines and smelting-works soon fol- duction to Old Testament: Christianity lowed, and the construction of many miles of railway by the Furness Rail-The docks, four in number, cover an area of 280 ac. Noteworthy buildings are the town-hall, erected at a cost of £80,000, and the picturesque ruins of Furness Abbey. B. returns one member to parliament. Pop. (estimated) 70,000.
Barrow Point, a long sandy point on the northern coast of Alaska.

Barrow Strait, Canada, joins Lancaster Sound and Melville Sound. Average breadth 50 m. Discovered by Parry, and named by him after Sir John B., the patron of Arctic exploration.

Barrulet, see HERALDRY.

Barry, a term in heraldry applied to a shield that is divided by horizontal lines into an even number of partitions of interchangeably disposed tinctures. According to the number of portions it is termed B. of six, eight, or ten pieces. B. of six is the most common, and figures in the armorial bearings of many noble families. Barry-bendy is the term used of a shield divided B. and bendy, i.e. by lines running from dexter chief to sinister base, etc.. the tinctures being interchanged. Barry-pily is the term applied to a shield divided

into an even number of partitions by piles placed barwise across it.

Barry: 1. Small is. in Bristol Channel. 2. Scaport of Glamorganshire, S. Wales, 7 m. S.W. of Cardiff, opposite B. Is. It has a tidal basin of 90 ac. between the mainland and the is., and large docks, opened in 1889, which cover 114 ac. and have accommodation for the largest vessels. There is an export trade in coal and iron, and the tn. is managed by a most progressive municipality. Pop. 27,000. 3. The name of a parish of Forfarshire, Scotland, 7½ m. S.W. by W. of Arbroath on the North British Railway. It has an area of 5328 ac.

and a pop. of 4000.

Barry, Alfred (1826-1910), Eng. bishop, educated at King's College, London, and at Cambridge. London, and at Cambridge. Head-master of Leeds Grammar School, 1854-62; prin. of Cheltenham, 1862; of King's College, London, 1868; ex-amining chaplain to Bishop of Bath and Wells, 1869; Canon of Worcester, 1871; of Westminster, 1881; member of London School Board, 1871-7; othership in ordinary to the green chaplain in ordinary to the queen, 1877; primate of Australia, metro-politan of New South Wales, bishop of Sidney, 1884-9; canon of Windsor,

and Socialism, 1891; England's Mission to India; Hulsean Lectures; Position of the Laity, 1903; The

Christian Sunday, 1904. Barry, Sir Charles (1795-1860), architect, was a native of Westminster. After serving his apprenticeship with a firm of Lambeth architects he travelled in Greece, Italy, Egypt, and Palestine. He started practice in London in 1820. His first important work was St. Peter's Church at Brighton. Subsequent notable designs were the Athenæum at Manchester, Halifax town-hall, King Edward's Grammar School at Birmingham, and the Travellers and Reform clubs in Lon-don. In 1835 B. was successful in the competition for the design for the new Houses of Parliament, and was knighted by Queen Victoria at the opening of the Victoria Tower and Royal Gallery in 1852. He was elected R.A. in 1841, was a fellow of the Royal Soc., and member of many foreign academies. He was buried in Westminster Abbey. See Life by his son, Bishop Barry, 1867.

Barry, Elizabeth (1658–1713), an See Life by his

English actress. She is said to have been the daughter of Edward B., a barrister, and to have been patronised by Lady Davenant, but there is no certain foundation for these stories. She was introduced to the stage by the Earl of Rochester, making her first appearance in 1673 as 'Isabella, Queen of Hungary, in the Earl of Orrery's tragedy Mustapha. Though she showed no talent whatever on her first appearance, she was later universally considered as one of the finest actresses of the time, and created over 100 rôles. Her life was as im-

moral as her talent was great.

Barry, James (1741-1806), born at Cork, the son of a coasting trader; made great progress as a youth, and at twenty-two went to Dublin. Here he was introduced to Edmund Burke, who brought him to London, and soon sent him to Rome, where he remained five years. He returned to England, 1770, where he offered to join the project to decorate St. Paul's Church with scriptural paintings. In 1775 he pub., in answer to Du Bos and Winckelmann, an Inquiry into the real and Imaginary Obstructions to the Acquisition of the Arts in England. He painted six pictures for the Society for the Encouragement of Arts, etc. His most famous picture is that of the Victors at Olympia 1891; assistant-bishop in W. London, Canova said that this was sufficient 1897; rector of St. James's, Piccator bring him to England. He was dilly, 1895-1900. Among Dr. B.'s elected professor of painting at the Academy, but his quarrelsome spirit | the subject to Philosophical Transac-

made him unpopular, and he was expelled. He died of a fever.

Barry, Sir John Wolfe Wolfe-, Eng. comingineer, brother of Alfred, b. 1836; educated at Glenalmond, King's Edink College, London, and Trinity College. While under HawkshawB. wasengaged as resident-engineer during construction of bridges over Thames, and of stations at Charing Cross and Cannon Street. Later he built Blackfriars, Kew, and Tower Bridges; carried out Earl's Court, Ealing, and Fulham extensions of Metropolitan Dist. Railway; constructed B. Dock Cardiff (largest in Great Britain), and other engineering works in various parts. B. visited the Argentine, 1872; planned railway from Buenos Ayres to Rosario; knighted 1897. Consulting or of Gla

oſ 1 RailiScien andBride

gineer to many railway companies.

Barry, Lodowick, the author of a comedy called Ram-Alley, or Merry Tricks, first printed in 1611 and re-printed in Dodsley's Old Plays. For liveliness of incident and spirit and humour in dialogue and character it is one of the best of the old English Nothing is known with dramas.

certainty about the author.

Barry, Comtesse du, Marie Jeanne Gomart de Vaubernier (1744-93), reputed daughter of an exciseman; at the age of fifteen became mistress to Count Jean du B., through whom she caught the attention of the licentious Louis XV. He wished her to appear at court, and to make this possible Count Jean's brother Guillaume married her; she was intro-duced at the court at Versailles in 1769. At the death of Louis XV. in 1774 she was shut up in a convent near Meaux, but soon after Louis XVI. released her and restored to her the house at Luciennes which the old king had given her, and allowed her a pension. At the Revolution she was forgotten, but she showed her grati-tude by hastening to England in 1793 regardless of danger and selling her jewels for the use of the queen and her children. On her return she Uj Bars (New Bars), which are situ-was brought before the revolutionary ated 57 m. to the N.N.W. of Budapest. was brought before the revolutionary

In 1843 B. gave physiological lectures at St. Thomas's Hospital, becoming house-surgeon to Edinburgh Royal Maternity Hospital, 1844. See Edinburgh Medical Journal, 1856; Biographisches Lexikon der Herrvor-

Barry, Sir Redmond (1813-80), Colonial judge, educated at Trinity College, Dublin; barrister 1838. In 1839 went to Sydney; becoming shortly commissioner of Court of Requests in Melbourne, 1850, on formation of colony of Victoria, B. was solicitor-general; in 1851 became judge; 1855 first chancellor of Melbourne University; knighted 1860; visited England 1862, becoming commissions for the colony at Victoria missioner for the colony at Inter-national Exhibition, also at Phila-delphia Exhibition, 1876; read papers on Binding and Lending Books; founded Melbourne Public Library Books: and National Gallery. See Heaton's Australian Men of the Time; Proceed-

ings of Conference of Librarians, 1877.
Barry, Spranger (1719-77), son of an eminent silversmith of Dublin, was born in Skinner Row of that city. He mismanaged his father's business so badly that he became bankrupt, and adopted the profession of an actor. His first appearance was made at the Theatre Royal, Dublin, on Feb. 15, 1744. He played for a time under Garrick, but in 1749 left Drury Lane for Covent_Garden, and in both houses played Romeo and Julici in rivalry of each other simultaneously.

B.'s performance of Romeo was considered by many to surpass that of Garrick. B. crossed to Ireland after a time, and opened theatres in Dublin and Cork, but returned to Garrick in 1767. He again went to Covent Garden, however, in 1774, where he played till his death. He had no tact, and was ignorant and lacking in judgment, but was nevertheless a great actor.

Barry Cornwall, see PROCTER. Barry Railway Viaduct, across Taff

R., Glamorganshire, Wales; spans two other railway lines and a canal. Length 1420 feet, height 112 feet.

Bars is a north-western co. Hungary, the cap. of which is Aranyos Marot. It contains the two small adjoining tns. of O'Bars (Old Bars) and

was prought before the revolutionary tribunal for being a conspirator and having worn black for the death of the tyrant.' She was executed, November 6.

Barry, Martin (1802-55), English physician, studied in Edinburgh, Paris, Germany (under Tiedemann), the wife of Alexander the Great. After the death of Alexander, she was put to death through the instigation

of Roxana, who feared that B. might among his best known works: Dichgive birth to a son, whose claims terleben, 1890; Martin Luther, 1903; would clash with those of her own. Vound clash with those of her own: Geschichte der Deutschen Literatur, 2. The daughter of Artabazus, satrap 1901-2; and a biography of Jeremias of Bithynia and wife of Memnon, a Gotthelf, 1902. Rhodian. At the fall of Damascus, Bartenstein, a tn. of E. Prussia, 335 B.C., she fell into the hands of 34 m. S.S.E. of Königsberg, on the R. Alexander the Great, and became the Alle. Pop. 7000. mother of his son Hercules. She and Barter, the system of trading by her son were afterwards murdered the exchange of one commodity for by Polysperchon, by the order of another, as distinguished from the cassandra.

Cassandra.

Bar-sur-Ornain, see BAR-LE-DUC. Bar-sur-Ornain, see BAR-LE-DUC.
Bar-sur-Seine, a th. of France in
the dept. of Aube, 19 m. S.E. of
Troyes, situated on the l. b. of the
Seine. In the middle ages it was a
town of note. Pop. (1901) 3062.
Bart, Jean (1650-1702), born at Dunkiroue, as a boy corved under 4 direct

kirque, as a boy served under Admiral de Ruyter. Was in command of a frigate of the Fr. navy against the Spanish in the Mediterranean Sea. In the war with England he was captured and taken to Plymouth; he escaped, however, and was made a captain by the Fr. king. In 1690 he took command of a forty-run ship and helped Admiral de Tourville against the combined English and Dutch fleets; he obtained command next year of a squadron that went up the North Sea and landed on the coast of Scotland, plundering several villages; made an attack on Newcastle after the Fr. defeat at La Hague. Retired after peace of Ryswick in 1697.

Bartan, or Bartin, River, the anct. Parthenius (q.v.).

Bartas, Guillaume de Saluste du (1544-90), born at Montfort, in Armagnac; followed the profession of arms; served Henry IV., and died from wounds received at the battle of Ury. His poem, La Semaine, ou Création du Monde, 1578 (probably imitated from Tasso's Sette Giornate), went through 30 eds. in six years, and was translator), Chapmau, and Sir Philip tral African Sidney. This Sylvester was admired great value. by Dryden and Milton, and Fletcher Barthélen owed much to him; in reference to his subject and genius he may be com-

Geschichte der Deutschen Literatur,

Barsur-Aube, a tn. in the dept. of Barsur-Aube, a tn. in the dept. of Huns. Pop. 4500.

Barsur-Aube, a tn. in the dept. of the common method of exchange amongst primitive peoples, and is a Manufs. brandy, wool, and cotton; phase in the economic history of all exports grain and wine. Originally a races. In civilized countries the custom has become practically extinct with the establishment of the many course of the money currency. In law 200 or exchange amongst primitive peoples, and is a mongst primitive people peo money currency. In law, B., or exchange, is a contract for the exchange of two commodities.

Bartfeld, a tn. of Sáros, Hungary, on the R. Tapola, 28 m. N. of Eperies. It contains a 13th-century Gothic church and a 15th-century Rathaus, while 2 m. to the N. are famous chalybeate springs. The first general Protestant synod of Hungary met

here. Pop. 6102.

Barth, a seaport of Pomerania, Prussia, on the Binnensee at the mouth of the B., 17 m. N.W. of Stral-sund. The chief industries are ship-There is a 13th-century church. Pop. 7100.

Barth, Heinrich (1821-65), German explorer, was a native of Hamburg. After studying at the university of Berlin, he made his first expedition to Africa, visiting Tunis, Tripoli, Tripoli, Benghasi, and travelling down the valley of the Nile. In 1847 he travelled in Egypt, Palestine, and other parts of the Near E. An account of these journeyings was given in his Wanderungen durch die Küstenländer des Mittelmeeres (1849). From 1849 to 1855 he was engaged with the British expedition of exploration in Central Africa. His experiences during these years he described in his Reisen und Entdeckungen in Nord- und Centralthrough 30 eds. in six years, and translated into six languages. He edition, 1890). He subsequency many was greatly admired by Spencer. Interpolation of the four pour entry in Asia Minor and directly he served to enrich our European Turkey. In 1863 he became language by compounding words, professor of geography at the univerwhich were imitated by Sylvester (his sity of Berlin. His collection of Central State). Chapman, and Sir Philip trai African vocabularies (1862-4) is of translator). afrika (1857-8; Eng. translation, new edition, 1890). He subsequently made

Barthélemy, Auguste Marseille (1796-1867), writer of political verse, was a native of Marseilles. After compared with Blackmore.

Bartels, Adolf (b. 1862), a German College of Juilly, he went to Paris in author and journalist. He was born 1822. Here he distinguished himself at Wesselburen, in Holstein, and eduby writing a series of brilliant satires cated at Berlin. He has written poems, against the Bourbons. In 1826 was plays, and works of criticism and pub his mock heroic poem, Le Villéliterary history. The following are liade, written in collaboration with

his friend Méry. This was an enormous this ' success, as was also his Napoléon en Egypte (1828). The frank imperialistic sentiments of Le Fils de l'Homme (1829) brought about his imprisonment, from which he was released by ment, from which he was released by the revolution of 1830. This event he celebrated, in conjunction with Méry, in the brilliant poem, L' Insurrection (1830). From 1832 his popularity declined, owing to his support of government measures distasteful to the Liberal party. His changes of front he attempted to justify in his famous phrase, 'L'homme absurde est celui qui ne change jamais.'

Barthélemy. Jean Jacques (1716-95).

Barthélemy, Jean Jacques (1716-95), a Fr. writer and antiquarian, born at Cassis, in Provence. In early life he was educated for the church, and spent much time in the study of Gk. and oriental languages, and antiquities, especially numismatics. In 1745 he became an assistant in the Royal Cabinet of Medals, and in 1753 was appointed its director. He received a state pension which enabled him to carry on his research work, but the Revolution deprived him of office in 1789. He was denounced as an aristocrat in 1793, but his release was procured the next day. Citizen Paré, the pro tempore Minister of the Interior, offered him the place of chief librarian of the Royal, now National Library, which he refused on account of his age. His best known work is the Voyage du jeune Anacharsis en Grèce (4 vols. 1788), which has been trans. into many languages; the English edbeing edby W. Beaumont (5th ed., 6 vols., 1817). Of his other works may be mentioned Réflexion sur quelques monuments Phéniciens, 1750; and Réflexion sur l'Alphabet et la Langue de Relmurs 1754. A complete ed of his Palmyre, 1754. A complete ed. of his works was brought out in 4 vols. with a biography in 1821.

Saint-Hilaire, Barthelemy (1805-95), Fr. politician and savant, friend and literary executor of Thiers, was born in Paris. After occupying a minor position in the ministry of finance, during which time he contri-buted to the political press, he became in 1838 professor of Greek and Roman philosophy at the Collège de France. The revolution of 1848 again brought him into contact with politics as a member of the Assembly. On the occasion of the coup d'état he was one occasion of the coup a can he was one of the patriots who suffered imprisonment. After his release he vacated his professorship and devoted himself to oriental studies. As a member of the Bordeaux Assembly, to which he was elected in 1871, he proved himself a strong supporter of Thiers, and for some time acted as his corretary. In some time acted as his secretary. In Jules Ferry's cabinet of 1880-1 he was

La Philosophic dans ses Rapports avec les Sciences et la Religion, 1899, and François Bacon, 1890. He also made a verse translation of the Iliad.

Barthez, Paul Joseph (1734-1806), a celebrated Fr. physician, was born at Montpellier. Here he studied medicine with such success as to obtain his doctor's degree at the early age of nineteen. In 1756 he was employed as a physician to the army, but soon returned to Paris to edit in part the Journal des Savants and the Encurlopédic Méthodique. In 1759 he was appointed professor at Montpellier, and became chancellor of the university in 1785. He settled in Paris in 1780, and gained a great reputation in the practice of medicine. reputation in the practice of medicine. His chief work, Nouveaux Eléments de la Science de l'Homme (1778), expounds his doctrine of vitalism. Amongst his other works are: Oratio de Principio Vitali Hominis, 1773; Nova Doctrina de Functionibus Corporis Humani, 1774; Nouvelle Mécanique des Mouvements de l'Homme et des Aniques 1798; and Traitement des Animaux. 1798; and Traitement des Maladies Goutteuses, 1802. Appointed physician to Napoleon, 1802. Died of fever. Pub. posthumously, Traité du Beau, 1807; Consultations de la Médecine, 1810. Barthold, Friedrich Wilhelm (1799-

1858), a Ger. historian, born in Berlin. He studied at the universities of Berlin and Breslau, and in 1831 was appointed professor of history at Greifswald. His chief publications are as follows: Der Römerzug König Heinrichs von Littelburg, 1830-1; Geschichte von Rügen und Ponmern. 1839-45; Geschichte der Deutschen Städte und des Deutschen Bürgertums, 1850-2; Ges Hansa, 1854. Geschichte der Deutschen

Bartholdi, Frédéric Auguste (1834-1904), sculptor, was born at Colmar, Alsace, his father being of It. descent. His most famous work is the Liberty statue ('Liberty enlightening the World') on Bedloe's Is., New York, commissioned by the Fr. gov. and presented to the American nation to commemorate the centenary of its independence. This huge figure, 220 ft. high, was unveiled in 1886. Amongst B.'s other well-known work are the Lafayette statue, New York, 'The Lion of Belfort,' the monument to Vercingetorix, the Gaulish leader, and 'Grief

Bartholine, or Bartholin, Thomas (1616-80), son of Kaspar; a distinguished physician and professor of Copenhagen. He visited the most celebrated schools of Europe. In 1637 foreign minister. His chief works are he went to Leyden, where he republished his father's Anatomiæ Institutiones, with additions, in 1641. He also visited Paris, Montpellier, Padua, Malta, and Basle, where he took the degree of doctor of medicine, having chosen for his thesis De Phrenitude, 1645. In 1647 he was appointed professor of mathematics in the university of Copenhagen, in the university of Copenhagen, York, and then lived in Italy till his which in 1648 he exchanged for the chair of anatomy, which he held till statues are, 'Youth and Age,' 1661. In 1670 he was appointed physician to the king and became librarian for the university; afterwards, in 1675, the king appointed him a member of the grand council of Huguenots which commenced in Paris Day wards. He was a status are, 'Youth and Age,' Eagle,' and 'Eve Repentant.' Eagle,' and 'Eve Repentant.' the name given to the massacre of Huguenots which commenced in Paris of St. Retrievements' Day Aug. 24 Denmark. He pub. numerous works on medical subjects, and was an ardent supporter of Harvey's doctrine of the circulation of the blood. See Haller's Bibliotheca Medica, 1776-8, and B. Anatomica, 1774-7.

Bartholine, or Bartholin, Thomas (1659-90), the son of the above, eminent in the science of jurisprudence. Studied at the universities of Copenhagen, Leyden, Paris, Leipzig, and Oxford. Appointed professor of history and civil law at Copenhagen, and held the offices of assessor of the consistory, secretary to the king, antiquary and keeper of the royal archives. His chief work is Antiquitatum Danicarum Libritres. 1689.

Bartholinus, Kaspar (1585-1629), a Dan. scholar, born at Malmö, Sweden, and died at Copenhagen. He became professor of rhetoric in the University of Copenhagen in 1611, of medicine in 1615, and of theology in 1624. His text-book, Institutiones Anatomicæ, 1611, was trans. into Eng., Fr., and Ger., and was used throughout Europe during the 17th century. He had two sons, who were distinguished scholars: Jacob (1623-53), an orientalist, and Thomas (1616-80), a physicalist, and thomas (1616-80). cian, professor of mathematics in the University of Copenhagen in 1646 and of medicine 1647-61. He re-yised his father's *Institutiones Ana*tomica in 1611, and himself wrote on anatomy and medicine. His son, Thomas, 1659-90, was the author of Antiquitatum Danicarum Libri Tres, 1689.

Bartholomé, Paul Albert (b. 1848), a Fr. painter and sculptor. He was born at Thiverval, Seine-et-Oise. He studied under Barth. Menn in Geneva and later entered the studio of Léon Gérome in Paris. He exhibited genre pictures at the Salon from 1879-86, his best being 'Souper de vieil-lards,' 1880; 'Les derniers épis;' lards, 1880; Les deriners opis, 'L'aïcule coupant du pain pour ses petits enfants.' Since 1891 he has exhibited sculptures at the Salon. 'Aux morts,' 1899, now placed in the Père Lachaise cemetery, is one of the finest pieces of modern sculpture.

Bartholomew, Edward Sheffield (1825-58), an American sculptor. He was born in Connecticut, and became, in succession, a dentist, painter, and sculptor. He was director of the Wadsworth Gallery at Hartford, where there is a large collection of his works. He studied art in New York, and then lived in Italy till his death, at Naples. His best known

on St. Bartholomew's Day, Aug. 24, 1572, and spread through the provs. during the succeeding weeks. The total number of those killed has been estimated at figures varying from 30,000 to 70,000. In Paris alone 4000 perished. The outrage owed its inception to the cruelty and cunning of Catharine de Medici, who, as regent for her son Charles IX., after provoking the eight years' conflict between the Catholics under the Duke of Guise and the Protestants under the Prince of Condé, during which both Huguenots into a sense of security by marrying her daughter, Margaret, to the Protestant Henry of Bearn (afterwards Henry IV.). She then worked upon the king's feelings in such wise as to convince him that Admiral Coligny, the Huguenot leader, had designs upon his life, and in a fit of passion he gave orders that Coligny should be killed and all the Huguenots with him. Catharine summoned a council, and St. Bartholomew's Day was appointed for the massacre. Coligny was entired to Paris and murdered. His death was the signal for an orgy of slaughter. Prince Henry and the Prince of Condé only saved their liv version to the

pope celebrated a special medal, proclaiming a year of jubilee, and other ceremonies. See White's Massacre of St. Bartholomew, 1867, and Acton's essay in his History of Freedom, 1907.

Bartholomew, St., one of the twelve apostles, commonly identified with Nathanael, was born at Cana in Galilee, and introduced to Jesus by Philip. After the Crucifixion he is stated by various untrustworthy authorities to have preached in India, Armenia, and Asia Minor. According to tradition he was flayed alive and crucified at Albanopolis in Armenia, or Urbanopolis in Cilicia. His festival

is celebrated on August 24.
Bartholomew, St., an is, of the West Indies, lying between St. Martin and St. Kitts (Christopher). It was first

settled by a colony of Frenchmen some other part of a building from St. Kitts in 1648. In 1689 it was generally had loopholes for bown taken by the English under Admiral Thornhill and remained in their possession until the peace of 1697, when it was restored to France. In 1746 it was again taken by the Eng. and was once more given up under the treaty of Aix-la-Chapelle. In 1785 the iswas ceded by France to Sweden, and continued subject to that power tild 1878, when it was once more restored to France. The soil is fertile, producing sugar, cotton, tobacco, mandioca, cacao, and indigo. The is. is volcanic, and the shores are rocky and dan-gerous. Le Cerénage is a safe harbour, and near it is the capital, Gustavia. Area of is. 8 sq. m. Pop. about 3000.

Bartholomew Anglicus, see GLAN-

VILLE, BARTHOLOMEW DE.

Bartholomew Fair was held annually in W. Smithfield, London, from 1133 till 1855 on St. Bartholomew's Day (Aug. 24, old style). It was at one time the chief cloth fair in the country, and an important market for cattle, pewter, and leather. A great feature of the fair was the large num-ber of exhibitions, shows, performers of all descriptions, quack doctors, etc., which combined to make it one of the most widely popular affairs of its kind. After 1840 the exhibitions were held at Islington. It was proclaimed by the lord mayor for the last time in 1850 and abolished as a nuisance in 1855. See Morley's Memoirs of Bartholomew Fair, 1859.

Bartholomew's (5t.) Hospital, Smithfield, London, was founded in 1123 by Rahere, a minstrel and favourite of Henry I., who was also prior and founder of the adjoining priory of the Augustinian Canons, in the church of which, St. Bartholomew the Great, his magnificent tomb is still to be seen. Within the grounds of the hospital is the anct. church of St. Bartholomew the Less. The priory and hospital' were dissolved at the Reformation, but Henry VIII. re-founded the latter in 1547. Rebuilt in 1730-66, it was extended in 1881 by the new buildings for the medical school, and from 1905 onwards by other considerable additions. Attached to it is a convalescent home at Swanley, Kent. The hospital contains paintings by Hogarth, Kneller, Reynolds, Lawrence, and Millais. Among the professors of the medical school have been Harvey, discoverer of the cir-culation of the blood, the anatomist Richard Owen, and the famous Abernethy.

Bartizan, a word apparently first used by Sir Walter Scott to describe a small, battlemented, overhanging turret projecting from the parapet, the angles at the top of a tower, or

generally had loopholes for bowmen. Bartlett, Sir Eilis Ashmead (1849-1902), a politician. He was born in Brooklyn, New York, and graduated at Christ Church, Oxford, in 1872. He became an inspector of schools. 1874-Decame an inspector of schools. 1841-77; was called to the bar from the Inner Temple, 1877; an examiner in the educational dept. of the privy council office, 1877-80; M.P. for Eye, 1880-84; for Ecclesall Division, Sheffield, 1885-1902. He was chairman of the National Union of Conservative Associations. 1886-88. He became Associations, 1886-88. He became civil lord of the Admiralty in 1885, and was knighted in 1892. He was a strong anti-Russian, and an enthu-siastic supporter of Turkey. Ho fought for the Sultan against Greece in 1897, and was taken prisoner by the enemy. He also went to the front in 1899 when the Boer war broke out. Author of The Battlefields of Thessaly (1897), and numerous political articles.

Bartlett, John Russel (1805–86), an American author and antiquarian. He began life as a banker at Providence, but removed to New York, where he was engaged as a foreign bookseller (1837-49); he was appointed on the commission to determine the boundary line between the U.S. and Mexico (1850-4); and was secretary of state for Rhode Is. from secretary of state for knode is, iron 1855 to 1872. He wrote The Progress of Ethnology, 1847; A Dictionary of Americanisms, 1850; Literature of the Rebellion, 1866; Primeval Man, 1868. His bibliographical works in-clude Records of the Colony of Rhode Island and the Providence Plantations (10 vols. 1856,65) and Ribliography (10 vols. 1856-65) and Bibliography of Rhode Island, 1864.

Bartlett, William Henry (1809-54), an Eng. artist. He was b. in London, and was apprenticed, as an architect, to John Britton. His sketches were almost entirely topographical. He provided the illustrations to Britton's Cathedral Antiquities of England, 1814-32: and illustrated American Scenery, 1840; by N. P. Willis, after having travelled extensively in N. America. He is also the author of many works on Palestine and Egypt, which inon Lacounc and Exper, which include, Walks about Jerusalem, 1844; The Nile Boat: or Glimpses of Egypt, 1849; and Footsteps of Our Lord and His Apostles in Syria, Greece, and Italy, 1851.

Bartoli, Adolfo (1833-94), an It. athor. He was born at Fivizzano. author. He was associated in the editorial management of Archivio storico Italiano, 1856-59; director of the navalacademies at Leghorn, Piacenza, and Venice; and professor of literary history in the Instituto di Studii Superiori of Florence. 1874-94. He pub. a critical history of It. literature down to the 14th century, Storia della Letteratura Italiana (8 vols.), 1878-89; his other works include I primi due secoli della letteratura Italiana, 1870-79; I viaggi di Marco Polo, 1859; and I precursori del Boccaccio, 1876.
Bartoli, Danielle (1608-85), an It. Jesuit, born at Ferrara, and died at Rome. He entered the order of the

Bartoli, Danielle (1608-85), an It. Jesuit, born at Ferrara, and died at Rome. He entered the order of the Jesuits at the age of fifteen. He was commissioned by the father-general to write a history of the order, and it is for his Istoria dell Compagnia di Gesù that B. is chiefly remembered. Vols. i.-iii. deal with the history of the Jesuits in Asia, Japan, and China; a vol. on Italy appeared in 1673, and one on England in 1667. He was appointed rector of the Gregorian or Roman College in 1671. A complete edition of his numerous works appeared at Turin in 34 vols. (1823-44).

Bartoli, Pietro Santo (1635-1700), an It. painter and engraver, born at Perugia. As an engraver he obtained a great reputation, more however from the subjects and the number of his prints than for any particular excellence of execution. He studied painting under P. Le Maire and under Nicholas Poussin, from whom he probably, in some degree, derived his great love of the works of anct. art. As a painter he did very little beyond copying, in which he was so excellent that even Poussin himself had difficulty in distinguishing between his own pictures and the copies made of them by B. He had a correct appreciation of the merits of Gk. design, and though technically his prints have little excellence, they are in most cases true to their originals. prints, mostly etchings, which amount to many hundreds, are chiefly from anct. bassi-rilievi or paintings in the ruins in or about Rome and other, Italian cities.

Bartoli, Taddeo, or Taddeo di Bartolo (1363-1422), early 1t. painter, was b. at Siena. He was one of the greatest of artists in the period which preceded the Renaissance, and his chief care was expended on frescoes. Some of his best work, dating from 1414, is to be found in the municipal palace of Siena, and in the cathedrals of Pisa, Perugia, and Genoa. His favourite subject was the life of the Virgin, and one of his earliest works, 'The Virgin among the Saints,' 1390, is in the Louvre.

Bartolini, Lorenzo (1777-1850), a celebrated Italian sculptor, was a native of Vornio, near Florence. After acquiring considerable reputation as a modeller in alabaster, he went to Paris in 1797, where he studied painting under Desmarets

and sculpture under Lemot. His basrelief of 'Cléobis and Biton,' 1803, gained the second prize of the Academy. After the fall of Napoleon, who had been his great patron, he retired to Florence, where he died. Amongst his best works are: 'Charity,' 'Pyrrhus hurling Astyanax from the Walls of Troy,' 'Hercules and Lichas,' and 'Faith in God.'

Bartolommeo di Pagholo del Fat-torino, Fra (1475-1517), also known as Baccio della Porta. One of the foremost Florentine painters of the Renaissance. He was born at Savignano, near Florence, by the gate of San Piero Gattolino, hence his name, della Porta.' He entered the studio of Cosimo Rosselli, where he came into contact with Piero di Cosimo and Albertinelli. He became a devoted follower of Sayonarola, and on the reformer's death renounced his profession and in 1500 joined the Dominicans at San Marco. However, he continued to paint in his convent, and about 1504 painted the celebrated picture in the Florentine Academy, Apparition of the Virgin to Saint Bernard.' In 1506 Raphael on a visit to Florence made the acquaintance of B., and the two artists influenced each other's work in turn to a great degree. B. also learnt much from Leonardo da Vinci, and later from Michael Angelo. He was associated with his friend Albertivelli in many of his pictures; the fresco of the 'Last Judgment' (Santa Maria Nuova), 1498, finished in the lower part by Albertinelli; and the 'Madonna and Saints' in the Pitti and the 'Assumption' in Berlin are among their joint productions. Some of his finest work is t Lucca, including the beautiful Madonna della Misericordia,' 1515; of his other well-known pictures, only few can be mentioned. Marriage of Saint Catharine (in the Louvre), 'Saint Mark' (Pitti), and 'Saint Sebastian.' B. excelled

Gruyer (Paris 1886); and Vasari's Lives of Italian Painters. 1895.
Bartolozzi, Francesco (1727-1815), a celebrated It. engraver, was a native of Florence. He was originally intended for his father's profession of silversmith, but his artistic bent led to his being instructed in painting. He subsequently studied engraving at Venice under Joseph Wagner. For a short time he lived in Rome, where he engraved a fine set of plates from the life of St. Vitus. In 1764 he settled in England under the patronage of George III. He was

perfect symmetry of composition. He is said to have been the first to

use the lay figure. Consult the biographies of Leader Scott, 1880; and

particularly in draperies

one of the original members of the | Cuba and in the Anglo-Boer War of R.A., and executed for them, from Cipriani's design, the diploma, which is still used. In 1802, at the invitation of the Prince Regent of Portugal, he became superintendent of an engraving school at Lisbon, where he died. Amongst his best works are The Silence and Clytic, after Annibale Caracci, and Venus, Cupid, Satyr, after L. Giordano. The famous actress, Madame Vestris, was his granddaughter. See Tuer's Barto-lozzi and his Works, 2nd ed., 1885; Baily's Francesco Bartolozzi, and 1907.

Barton, Andrew, Scottish naval commander and the hero of a popular Scottish naval ballad, was killed in a fight with two English ships in 1511. Many of his operations savoured of piracy.

Barton, Benjamin Smith (1766-1815), an American naturalist and He was born at Lancaster, Pennsylvania, and studied medicine and the natural sciences in Philadel-phia, Edinburgh, and London from 1782-88, and graduated at Göttingen. On his return to America he worked up a practice in Philadelphia, and in 1790 became professor of natural history and botany in the college there, and thus was the earliest teacher of natural science in N. He also held in succession America. the chairs of materia medica, 1796, and practice of medicine. In 1802 he was electe American

in 1809 pre His works include Medical Society. Elements of Botany, 1812-14; Collections for an Essay toward a Materia

Medica of the United States, 3rd ed., 1810; and Flora Virginica, 1812.

Barton, Bernard (1784–1849), commonly known as the 'Quaker poet,' was born at Carlisle. For the greater Woodbridge in Suffolk. He was the author of Metrical Effusions, 1812; Poems by an Amateur, 1818; and Poems, 1820. These works are mostly distinguished by piety and pathos. He was a friend of Charles Lamb, who gave him good advice on various occasions. See his Letters and Poems, 1849; new ed., 1860, with a memoir by Edward Fitzgerald.

Barton, Clara, American philanthropist, was b. at Oxford, Massachu-setts, 1821. During the American Civil War she did relief work on battlefields and organised at her own expense the search for missing men. In the Franco-Ger. War of 1870, she associated herself with the Inter-national Red Cross of Geneva, since associated nersen what the international Red Cross of Geneva, since when she represented the U.S. at a Fusilier brigade. He was wounded many international conferences, and in 1898 did personal field work at Krugersdorp dist. till 1902. He was

Cuba and in the Anglo-Boer war of 1899-1902. Her publications, besides her pamphlets and reports, include a History of the Red Cross, 1882: History of the Red Cross in Peace and War, 1898: A Story of the Red Cross, 1904; and Story of my Childhood, 1907.

Barton, Rt. Hon. Sir Edward, K.C., Darachestellan statemen. He was here

an Australian statesman. He was b. in 1849 at Glebe, near Sydney, New S. Wales, and was called to the bar in 1871. He was a leading figure in the legislative council and assembly, and was Speaker, 1883-87; Attorney-General, 1889-91; and Prime Minister, 1901-3, in the first Federal Parlin-ment of Australia. In 1903 he retired and became Senior Puisne Judge o

the Federal High Court.

Barton, Elizabeth, commonly called the 'holy maid of Kent,' was b. about the year 1506. She served at an inn at Aldington. After a severe illness in 1525 she became subject to hysterical ravings and fell into a state of religious mania. Archbishop War-ham sent two monks to examine her, and one of these, Edward Bocking, or Bockling, was quick to see that she might be used as an instrument for reviving popular belief in the Catholic Church. He instructed her in the fundamental points at issue between his church and Protestantism, and in the legends of the saints, and personally diricted her prophesyings to his own ends. In 1527 she became a nun at the priory of St. Sepulchre at Canterbury. In 1532 she opposed Henry VIII.'s intention to divorce Catherine and predicted his death within seven months of his marriage with Anne Boleyn. The non-fulfilment of Anne Boleyn. The non-fulfilment of this prophecy brought about a loss of popular confidence; she was arrested and confessed that 'all that she ever said was feigned of her own imagination only, to satisfy the minds of those which resorted to her and to obtain worldly praise.' In 1534 she was executed at Tyburn, with Bocking and other accomplices, on a charge of high treason. Sce Burnet's History of the Reformation in England, 1737.

Barton, Sir Geoffrey (b. 1844), a British soldier. He entered the army in 1862; he served with great distinction in the Ashanti War, 1873-4, and was promoted to the rank of captain; took part in the Zulu War, 1879: he went to Egypt (1882) with an expeditionary force, and was present at Kassassin and Tel-el-Kebir; he acted as assistant military secretary to China, 1884-5; and was again called to the front during the Boer and knighted in 1906.

beds of the Eocene strata which are well exposed in the cliffs of B. in Hampshire. They contain a great variety of fossils of creatures which were of sea origin.

Barton-on-Irwell, a tn. near Manchester, in the Eccles div. of Lanca-It is noted for its peculiar movable bridge across the Manchester Ship Canal, creeted in 1893. Pop.

36,000.

Barton-upon-Humber, an ancient mrkt. in. on the S. side of the Humber. At the time of the Norman

well-known work, Le Peintre-Graveur Life and Times, 1888.
in 21 vols. 8vo., 1803 21, which is a Barvas, a parish of Lewis Is., description of the greater part of the Hebrides, Ross-shire, Scotland. Pop. works of the prin. engravers of Eur- about 700. ope, and to which he now chiefly owes his reputation. His etchings also are numerous.

Bartsch. Karl Friedrich Adolf Konrad (1832-88), a German scholar. He was born at Sprottau, Silesia; professor of Germanic and Romance philology at Rostock (1858-71), and at Heidelberg (1871-88). He edited numerous texts of Middle High Ger. and Provencal poetry, and pub. Untersuchungen über das Nibelungenlied in 1865, which he translated into modern Ger. two years later. He also translated the poems of Burns (1865) and Dante's Commedia (1867), while in 1874 he pub. a volume of original lyrics. He also wrote critical works on the early literature and language of Germany and France.

Bartsia, a genus of plants, chiefly herbaceous and semi-parasitic, belonging to the Scrophulariaceæ which grow in a N. temp., in tropical mts., and S. America. There are three British species, of which B. alpina and B. odontites are two. B. maxima, a native of Candia, grows to a height of 1½ or 2 ft.; B. acuminata is found in America, B. trixago in S. Europe

and Asia.

Barttelot, Major Edmund Musgrave (1859-88), a distinguished officer of the British army. He served in India, an earth occurring in the minerals Afghanistan, and Egypt: joined the barytes, or heavy-spar, and witherite.

created C.B. in 1889, C.M.G. in 1900, Stanley expedition for the relief of Emin Pasha (1887), and was murdered Barton Clay, a name given to some by one of his followers on a journey into the interior. Stanley brought a charge of cruelty against him, which was refuted by his brother, Major Walter G. B. E. in *The Life of* Edmund Musgrave Bartlelot (London. 1890).

Barvta

Baru, a fluffy substance obtained from the sago palm Saguerus sacchariffei, used for stuffing cushions

and for calking boats.

Baruch (Heb., blessed), the son of Neriah, the son of Maaseiah, to whom Jeremiah dictated his prober. At the time of the Norman phesies, and who read the roll before Conquest it was one of the prin. ports the princes in the reign of Jehoiakim. of the Humber. The town contains about 606 B.C. During the siege of two large churches, one of which is Jerusalem by Nebuchadnezzar, B. very old. There is considerable trade and his master were at first imin corn, and bricks, tiles, ropes, sackprisoned, but were afterwards reing, sailcloth, and pottery are manuleased and allowed to choose their continued. ing, salicloth, and pottery are manuleased and allowed to choose their factured. Tanning is also carried on. Pop. (1901) 5671. went into exile in Egypt, c. 588 B.C. Bartsch, Adam von (1757-1821), was there is diversity of opinion concernband d. at Vienna. He was educated in the school of engraving at Vienna, Josephus (Antiq. X. ix. 7) he went under Professor Schmützer. In 1781 from Egypt to Babylon: but another he was appointed keeper of the prints asserts that he died in Egypt. See of the proval collection, which led Legminh xxvii xxvii xiii xlx of the royal collection, which led Jeremiah xxxii., xxxvi., xliii., xlv., eventually to the publication of his and li., and Cheyne's Jeremiah: His

Barwick, John (1612-64), an Eng. divine. He graduated at St. John's College, Cambridge, in 1635, and became M.A. in 1638. His loyalty to the Royalist cause obliged him to leave Cambridge; he communicated the designs of the rebels to Charles I. was charged with high treason and imprisoned in the Tower, 1650-2. At the Restoration, he became dean of Durham. 1660, and dean of St. Paul's, 1661.

Barwood, see Canwood.

Barye, Antoine Louis (1796-1875). Fr. sculptor, was born in Paris, and studied sculpture under Bosio and painting under Gros. He is famous for his marvellous animal studies. which were the starting-point of a new type of art. Amongst these are the 'Lion Struggling with a Snake,'
'Lion Resting,' 'Theseus and the
Minotaur,' 'Lapitha and Centaur,'
and 'The Hunt of the Wild Ox.' There are sev. examples of his work in the Gardens of the Tuileries. He was also successful with the human figure, as exhibited in his four groups, 'War,' Peace,' Strength,' Order.' He worked largely in bronze. See Alexander's A. L. Barye, 1889; and Ballu's L'Œuvre de Barye, 1890.

Baryta, Barium monoxide (BaO), an earth occurring in the minerals

The original name was barole (from superior in some respects, especially βαρύς, heavy), but Lavoisier's alteration to B. has been universally adopted. It was at first thought to be an elementary substance, but pro-longed investigation led to its being separated into the metal barium (q.v.), and oxygen. B. is formed when (q.v.), and object. It is not by heating barium burns in air, or by heating barium nitrate until no more red fumes are given off. It may also be the control withheit mixed prepared by heating witherite mixed with charcoal to a white heat. It is a greyish-white solid, with sp. gr. about 5; it melts at 2000°. When heated with air barium peroxide (BaO2) is formed. Baryta-water is a solution of barium hydroxide in water. It is used as an absorbent for carbon dioxide.

Barytes, heavy-spar, or barium sulphate, a mineral, important as the chief source of soluble barium compounds, and as a pigment under the name of 'permanent white.' It derives its name from its high sp. gr. (4.5) as compared with other mineral sulphates or other minerals with the same general appearance. It occurs in rhombic crystals of varied forms, and may be artificially produced by acting upon baryta with fuming sul-phuric acid. The natural sulphate is commonly found associated with lead and silver ores, and is prepared for use as a paint by being finely ground, usually along with white-lead, treated with sulphuric acid to remove iron salts, washed, and dried.

Baryton, also called Viola di Bardone, a stringed musical instrument resembling in tone the viola da gamba. It was invented in 1700, and has now fallen into disuse. Haydn composed a large number of works for this instrument.

Barytostrontianite, see STRONTIUM. Bas, or Batz, an is. in the Eng. Channel, off the N. coast of the dept. of Finisterre, France. It is about 21 m. long and 2 m. broad. The is. 2½ m. long and 2 m. broad. The is. has three vils., a fine lighthouse erected on a hill 223 ft. above the sea level, two forts, and a haven, that of Kernoc. The chief occupation of the men is fishing, while the women cultivate the soil. Pop. about 1200.
Bas, or Bas-en-Basset, a town of
France in the dept. of Haute Loire,

arron. Yssingeaux, on the l. b. of the Loire, 17 m. S.W. of St. Etienne. There are mineral springs; corn and the vine are grown, and there are manufs. of pottery, ribbons, and lace. Pop. about 2000.

Basaiti, Marco, one of the best of the early It. painters, was born in the Friuli, probably about the middle of the 15th century. He lived chiefly in duced by chemical precipitation from Venice, where he was the rival of the ocean which covered the surface of Gian Bellini, to whom he was even the earth at one time. In 1752 Guet-

in composition, in accessory groups, and in the management of the landscape or scene. He was perhaps inferior to Bellini in modelling the features, but he was quite equal to not his super Some of B.'s

most brillian gard to color his works in Venice. His masterpiece is the 'Calling of St. Peter and St. Andrew,' in the Academy of Venice, formerly in the old church della Certosa. There is a beautiful 'Descent from the Cross,' by B., in the

Gallery of Munich.

Basalt, a widely-distributed igneous The Lat. basaltes is derived from an African word meaning 'a stone containing iron,' and many varieties of the rock contain iron in the form of

magnetite. Igneous rocks are broadly divided into a large amount and basic roc

quartz is absent, and a comparatively large amount of iron and magnesia is present. The most abundant member of the latter group is B., which consists chiefly of plagioclase felspar, augite, and olivine. Under the microscope the minerals augite and olivine appear embedded in a crystalline ground mass of plagioclase felspar, augite, and magnetite. In older rocks the olivine is frequently altered in part to a fibrous green serpentine. B. rocks are of common occurrence in Iceland, Skye, Mull, Antrim, Central France, Germany, Italy, Washington, Idaho, the Deccan, Sandwich Islands, etc. They represent lava which has exuded from fissures in the ground, and has spread over a considerable surface. The stresses to which the cooled rocks were subjected resulted in a network of cracks or 'joints' of a roughly hexagonal shape, similar to the cracks produced in dry mud under certain circumstances. Hence many of the basaltic rocks of Northern Ireland and Western Scotland exhibit columnar structure, as in the Giant's B. was known to the ancient Egyptians and Romans, who used it for building purposes. In Rome it was introduced in the 1st century B.C., the black, green, and brown varieties having been identified. The basaltic plateau of Auvergne played an important part in the controversy between the 'Vulcanists' and 'Neptunists' of the latter part of the 18th century. The 'Neptunists,' led by Werner, held that igneous rocks were produced by chemical precipitation from

of Auvergne, showed that they were and in 1865 another club, the Exceltrue lavas, not necessarily ejected sior, was formed at Boston. For five from cone-and-crater volcanoes, but years or so the game did not 'catch gradually extruded from fissures in on with the public very extensively, the earth's crust and extending themselves in all directions.

Perugia. Pop. 5000.

Bascinet, Basinet, or Basnet, was a light helmet, so called from its resembla: out a v

visor

Base (Gk. βάσις), a foundation or starting-point. In geometry, the line or surface upon which a figure or solid stands. In games, such as baseball and prisoner's B., the station to or from which the player proceeds. In heraldry, the lower portion of a shield, often cut off from the remainder by a horizontal line. Any figure which is placed in this lower part is said to be in B., and if it does not occupy the central portion it must be distinguished as being in the dexter or sinister B. point. In architecture, the lowest member of a column upon which the shaft rests. In the military art, a secure position where the main supplies and reserve forces are kept, which is connected with the attacking forces by defended 'lines of communication.' In chemistry, a B. is a substance which is capable of com-bining with an acid to form a salt. In inorganic chemistry, Bs. are usually oxides and hydroxides of metals. The term is most often applied to the oxides of the alkali metals and the alkaline earths which combine readily with water, forming hydroxides. distinguishing feature is the power of turning red litmus blue. In organic chemistry, many substances exist, such as the alkyl compounds and the ammonia derivatives, which are capable of combining with acids to form organic salts.

Base, in music, see Bass.

Base, or Bass, or Base Viol is a name sometimes given to the violoncello, an old stringed instrument with five or

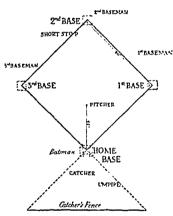
six strings.

Baseball is the national game of the U.S.A., such as cricket is in England. It was founded on the old Eng. game of rounders, to which it is still very similar, but has now been reduced to a science and skill quite unknown in the former pastime. It is a game of comparatively modern origin. one of the first mentions of it in litera-

tard, by a careful study of the B. rocks known as the Knickerbocker Club. but after 1865 its popularity increased by leaps and bounds, Baschi, an It. tn., in Umbria, on to-day its followers number millions the Tiber. It is 29 m. N.N.W. of of all grades of society. Recently, in New York, 250,000 people tried to get into a ground which only held 40,000, and working men are known to have paid as much as £5 for a ticket costing originally 8s. This was for the famous game between the New York Giants Bs. were worn in the reigns of Edand the Boston Red Sox, to decide ward II., Edward III., and Richard the world's championship (won in II. by most of the English infantry. 1912 by the latter club). But to go

CENTRE FIELD

LEFT FIELD RIGHT FIFTH



BASEBALL

back to some earlier history of the game, the first professional club was formed at New York in 1871, and five years later the National League of Professional Baseball Clubs formed, which to-day, working with the American Baseball Association, holds a position equivalent to our M.C.C. in the cricket world. The game is played by nine players on each side. The bat is round, and must not exceed 42 in. in length and 2½ in. in diameter at the thickest part. ball weighs about 5 ozs. and is about 9 in. in circumference. The ground is in the form of a diamond, 90 ft. square. Bases are placed on each angle, and are known as home, first, second, and third bases. The ball is delivered with ture is in Jane Austen's Northanger great swiftness by the pitcher, who Abbey, pub. in 1818. The first club stands in the centre of the diamond was formed at New York in 1845, and to the batsman, who stands by the

latter, while the fieldsmen take up positions as first, second, and third basemen, the short stop, centre fielder, right fielder, and left fielder. batsman must, after hitting the ball fairly, attempt to make the circuit of the bases at the angles of the diamond. If he succeeds he scores a run. He may stop at any base and try and steal on to the next while another batsman plays, but if he is touched by the ball away from the base he is He must always move on to make room for another base-runner. A batsman may be put out by failing to hit the ball after three attempts, in which case he is said to be 'out on strike,' and by being caught out by any of the fielders. Nine innings make up a game, unless the score stands at a tie at the ninth innings, in which case the game is continued till one or other of the teams is ahead at an even number of innings. An innings is closed when three men are out, and it is not necessary to wait until the whole side are out. This not only equalises the chances of both teams at batting, but of all the members of each team. In an ordinary game each player has from five to six chances at batting and to make runs, so that if he fails at the first attempt he has still other chances. The enjoyment of the players is not centred in the batting, for the fielding is so diversified and presents so many oppor-tunities of distinction, that many players enjoy it quite as much as the batting. Upon the celerity and accuracy of the fielders' movements the whole game may turn. Then in the pitching there is great art and skill required, to get curves, twists, and shoots on the ball. To such perfection has pitching and fielding been carried that in many professional games the score is rarely taken into double figures. At present the game is played very little in England, al-though one or two clubs have been formed. For those who want to read all the rules of B., Messrs. Spadings of Holborn, London, publish a very useful handbook which contains these and other interesting points on the game.

Base-Clef, see CLEF.

Base, Continued, see CONTINUED BASE.

Base, Double, see DOUBLE BASS. Base-Fee, see ESTATE; RECOVERY; TENANT-IN-TAIL.

Base-Figured, see Figured Base. Fundamental, see FUNDA-Base, Fund MENTAL BASE.

Base, Ground, see GROUND BASE. Base-line, in surveying, is a measured line which forms the side of a triangle, and of which the adjacent growth of the city.

home base. The catcher is behind the angles are also measured, so that the third point of the figure is easily determined. The country to be surveyed being thus mapped out in triangles, the details can be filled in without overlapping. In large surveys many B. are drawn, varying in length from

three to ten miles.

Base of Operations is the term used in warfare for the depôt where everything required for the fighting army-recruits, horses, food, and ammunition-is collected and organised before being sent to the front, where the wounded can be attended until recovered or transported to their homes. The B. of O. is usually a scaport or the bank of a river, bu tin inland warfare may be a mountain-range or stretch of plain. the only essentials are that the base should command a line of open communications between the army and the mother-country. An army cut off from its B. of O. and a base cut off from its source of supplies are both useless. In the Franco-Prussian War of 1870 the Prussian B. of O., for instance, was the chain of fortnesses which line the banks of the Rhine, and in the Boer War, 1899-1902, the British base was Cape Town. Base, Thorough, see THOROUGH

Base.

Basedow, Johann Bernhard, originally Johann Berend Bassedau (1723-1790), Ger. educational reformer, was born at Hamburg and died at Magde-In 1753 he taught at Soroe, in Denmark, and in 1760 in a school at Altona, which he was obliged to leave in the following year because of his heterodoxy. In 1762 Rousseau's Emile gained in him a strong admirer. and increased his desire to instruct youth according to nature in all things. In 1774 he pub. his Elementarwerk, an extension of Comenius's Orbus Pictus infused with the theories of Rousseau; it was an illustrated schoolbook, pub. by contributions from influential and wealthy people. In the same year he opened his Philanthropin at Dessau to carry his theories into practice, but after ten years he found himself unable to cope with it, owing to his restless and quarrelsome disposition. He then devoted himself to private tutoring, and the Philanthropin was closed three years after his death. He is noteworthy as the forerunner of Froebel and Pestalozzi, and his work as a reformer has had great influence on education throughout Europe.

Basel, or Bâle, sometimes incorrectly written Basic, a rich city of Switzerland and cap. of the half-canton of Bale Ville. The opening of the St. Gotthard Tunnel Railway in 1882 has largely been the cause of the growth of the city. Merchandise

by means of the St. Gotthard line. by means of the St. Gotthard line. The council also ratined the right of Although B. is supposed to be the wealthiest city of the Swiss Confederation, yet the city has a very dirty appearance. The town was founded in A.D. 374 by the Emperor Eugenius IV. ratified all the decrees ditty appearance. The town was Treaty of Prague, 1433. Finally, founded in A.D. 374 by the Emperor Eugenius IV. ratified all the decrees Valentinian. In the 5th century by a bull issued in 1433. On another the Bishop of Augusta Rauricorum prospect to unite the distressed Gks. moved his see thither. From that with the church of Rome the B. time the history of B. is that of the fathers refused to meet at Farrara. time the history of B. is that of the increasing power of the bishops in matters spiritual and temporal. In the 14th century the secular influence of the bishops was destroyed by the An earthquake almost destroyed the city in 1356, and later in the century more than half the promise was effected by which the pop, was destroyed by the 'Black fathers directed the church to obey Death,' sometimes known as the the new Pope Nicholas V. Thus 'death of B.' on account of the ended the last attempt to reform the ravages in that particular city. The church from within. ravages in that particular city. The church from within, city was admitted into the Swiss Confederation in 1501. Later it be- lowest story of a building. Mediæval came one of the chief centres of and Renaissance palaces were built the Reformation movement. Many with Bs., which possessed a more Lutheran books were pub. here. In massive, but plainer exterior than 1832 the rural dists, declared their the rest of the building. In modern independence as the city was in the dwelling houses, the B. usually conhands of the trades guilds. It was tains the porter's lodge, store-rooms, then divided into two independent of fices, servents' guarters, etc. independence as the city was in the dwelling houses, the B. usually conhands of the trades guilds. It was the divided into two independent offices, servants' quarters, etc.

Basey, a tn. of the Philippine Is.

Stadt and B. Ville. The canton of It is on the San Juanico Strait, Samar B. borders on Alsace-Lorraine and Is. Pop. 14,000.

Baden and has an area of 777 sq. m.

It lies on the northern slope of the Juras. The chief rivs are the Rhine of the Punjab, on the lower slopes of the Hills on the lower slopes of the Hills and the Hills. Juras. The chief rivs are the Rinne and its tribs., Birz and Egloz. The Rhine divides the city into two parts, known as the Great and Little B. There are many bridges over the Rhine. The inhab. are chiefly engaged in agriculture, fishing, manuf. of ribbons, woollens, and leather. A pariswrite ruse few feel in 1160. university was founded in 1460. Pop. (1901) 111,009.

Basel, Council of. A decree issued by the council of Constance and sanctioned by Pope Martin IV, had obliged the papacy periodically to summon councils. Under Pope Martin and succeeding popes the councils adopted different methods of pro-cedure from those hitherto used. Instead of methods followed by Constance, where the members deliberated and voted by nations, the council was divided into four depts., each with its own organisation, each investigating a particular class of subjects, its decision being communicated to the others. If three divs. agreed in their opinions the matter was brought before the whole council tor final discussion and judgment. Scriptures; Josephus, Antiquities of Attempts were made by the C. of the Jews.

B. to conciliate the Hussites, but the pope not only refused to sanction the movement, but ordered the council to and Formosa, and producing sugarbee dissolved. This order was discussed by the Council to the Jews.

from all parts of Central Europe is regarded, as was also the order that stored in B. before its redistribution the council should remove to Italy. by means of the St. Gotthard line. The council also ratified the right of by a bull issued in 1433. On another The pope failed to appear, and the council then issued a decree suspending him from office. He was formally deposed, and in 1439 Duke Amadeus of Savoy was elected in his place. On the death of Eugenius a com-

the Himalayas; pop. 84,500. Bashan is called by the Septuagint Bασὰν, by Josephus and Ptolemy Βαταναία (Batanæa). B. belonged to Gilead in the widest sense, but in a stricter sense it was distinguished from and situated to the N. of Gilead. B. bordered in the N. upon the Syrian dists. Geshuri and Maachathi; in the S. it did not reach to the R. Its western boundary was Jabbok. the Jordan. undefined.

B. was a kingdom under Amoritish sovereigns who resided in Ashtaroth and in Edrei. Og was the last king of the Amoritish dynasty. In the battle of Edrei, about the year 1452 B.C., the Israelites smote Og, with his sons, and all his people, until there was none left alive; and they possessed his land. Moses gave B. unto the half tribe of Manasseh, 1451 B.C. At the commencement of the Christian era B. belonged to the tetrarchia of Philippus, and afterwards to the tetrarchia of Agrippa II. See Holy Scriptures; Josephus, Antiquities of

Bashibazouks are irregular Turkish Emperor Valens. troops serving under the sultan and receiving their reward chiefly from plunder. They are strong and violent, and were greatly responsible for the Bulgarian atrocities of 1876.

Bashkirs, people who inhabit both slopes of the Ural Mts. from about 54° to about 56° N. lat. They are Mohammedan in religion, partly no-madic, and number about 750,000.

Bashkirtseff. (1860 - 84)Marie Russian painter and diarist, was b. of

intense and passionate desire for immortal fame. She was endowed with a beautiful voice and considerable literary gifts, but chose painting as her final expression in the arts, and her picture of 'The Meeting,' 1884, may be seen now in the Luxembourg. She travelled much in Rome, Nice, Paris, and other Continental towns, establishing for herself a reputation as a woman of society and culture, but when only twenty-four she succumbed to hereditary consumption. The Journal de M. B. appeared in Paris in 1887, and the Lettres de M. B. in 1891.

Basi, a tn. of the Punjab, India, 140 m. S.E. of Lahore; pop. 14,000. Basidu, Basidoh, or Bassadore, a port of Persia on Kishm Is., which is

a British possession.

Basil, a name applied to several species of Labiatæ. The sweet B., Ocimum basilicum, grows in India and is cultivated as a pot-herb; Calamintha arvensis is the common B., and C. Clinopodium the wild B. The B. famed in romance and art is the Ocinum basilicum; it is immortalised in Boccaccio's Decameron, in Kent's poem, and Holman Hunt's painting of 'Isabella and the Pot of Basil.'

Basil, or Basilius (Bagileios) (326-379 A.D.), commonly called St. B., and on account of his learning and piety surnamed the Great; born at Cæsarea, studied at Antioch and Constanti-nople. Libanius was his master, or roof rose high above the other part of more probably his fellow student. the structure, which consisted of two more probably his tends suddent, where the met galleries, called portious, placed one Gregory of Nazianzus; returned to above the other, and round the in-Cappadocia, 355, and taught rhetoric; ternal sides of the central building. Cappadocia, 355, and taught rhetoric; ternal sides of the central building, travelled in Syria, Egypt, and Libya, the portions was covered with a visiting the monasteries; he was so lean-to roof. At the end of the pleased with the lives of the monks pleased with the lives of the monks that he determined to found a monastery in Pontus. At the death of Eusebius, 370, he was chosen bishop responded to what we call the nave of of Cæsarea; he refused to embrace the a church, and the portices to the doctrine of the Arians, and in conse-

His works were issued in Greek by Frobenius at Bale. 1532, with a preface by Erasmus. See Cave's History of the Father of the

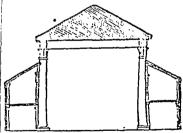
Church; Guidas, Basileius of Casarea. Basil, Monks of St. St. Basil, about the year 358, when he retired to Pontus, founded a monastery for him-self and his followers, and drew up its regulations, which were soon adopted in other monasteries. All who followed it styled themselves of the order of St. Basil, and St. Basil's Rule was the parent of that one afterwards framed by St. Benedict. In 1057 the order was introduced in the W. In Spain the monks of St. Basil follow the Gk. ritual, and in Italy the Lat .: there are or were many in Russia. The order is never known to have existed in England.

Basilan Is., the largest is. on the

Sula Archipelago, separated from Mindano Is. by the Strait of B. cap. is Isabela, and the pop. about

8000.

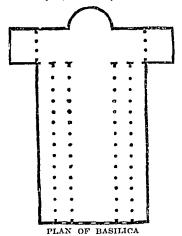
Basilica, from the Gk. βασιλική, lit. signifies a royal residence. Romans gave the name of Basilica to those public buildings with spacious halls, often surrounded with wide porticoes, and used for the adminis-tration of justice, and for business purposes. The first one built in Rome was the B. Porcia, 184 B.C., and they continued to be erected until the beginning of the 4th century A.D.



ELEVATION OF BASILICA

The B. consisted of a large roofed quence was much persecuted by the possessed Basilice in all the different

fora of the city. The B. Ulpia formed a part of the Forum Trajanum, and a B., of the Corinthian order, was discovered on the Palatine Hill. The Temple of Peace in the forum has been called the B. of Constantine. It is in Pompeii, however, that the most



perfect B. of antiquity exists. Many of the early Christian churches of Rome were built in the style of the Basiliee. Modern Basilice are still found in 1t. towns, and are used for

civil purposes.

Basilica (Βασιλικά, Βασιλικός νόμος), a Greek code, which was commenced c. A.D. 876 by the Emperor Basilius I., and completed by his son Leo VI. the philosopher, and pub. in sixty books, in 887. It was revised by the order of Constanting VII. about A.D. 946

in 887. It was revised by the order of Constantine VII., about A.D. 945. The B. comprised the Institutes, the Digest or Pandect, Code, Novellæ, and the Imperial Constitutions made after the time of Justinian, in sixty books, which are subdivided into titles. The extracts from the Digest are placed first under each title, then the constitutions of the Code, and next the extract from the Institutes and the Novellæ. The B. does not contain all that the Corpus Juris contains, but it contains some things which are not in the Corpus Juris. An edition of the larger part of the B., by Fabrot, was pub. at Paris in 1647, 7 vols. fol. Another edition is that of Heimbach, 1833-50.

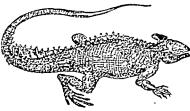
Basilicata, a part of Italy which exactly covers the modern prov. of Potenza, and was one of the original sixteen compartimenti of the It. kingdom. It forms part of anct. Lucania on the Gulf of Tarentum, and its chief n. is:Potenza. Pop. 500,000.

Basilicon (Gk. βασιλικόν, royal), a name sometimes applied to sev. resin ointments, consisting of yellow wax with lard and rosin, or of Burgundy pitch, suet, and turpentine. It is usually known as Ceratum resinæ, or resin cerate.

Basilicon Doron (Gk., royal gift) is the title of a book written by James VI. of Scotland in 1599 for his son, Prince Henry. In it he expounds his theory of the divine right of kings.

Basilides (fl. A.D. 125), the founder of a Gnostic sect, lived in Alexandria under the Emperors Trajan and Hadrian. In his doctrines he somewhat reflected Zoroaster, but his tendency towards asceticism was discarded by his later followers. He taught the doctrine of emanation, beginning with the emanation of mind from Abraxas, the Supreme Power, down to the creation of 365 worlds by a number of angelic powers. There were 365 emanations, a mystic number constantly occurring in this religion; the name Abraxas itself being a corruption of Abrasax, a Gk. word of which the letters are computed to make the number 365. Little is known of the life of B., who died c. A.D. 130.

Basilisk among the Gks. and Roms. was believed to be a creature possessing many extraordinary attributes, such as the power of killing by means of its deadly glance and burning, poisonous breath. The name has been



BASILISK

given by zoologists to a genus of treelizards of the family Iguanide, which are perfectly harmless. They are to be found in Central America, where they are considered to be edible. Basiliscus mitratus is the most common species, and is noted for its scaly helmet.

Basilius I., the Macedonian (d. 886). Emperor of Constantinople; at the age of twenty-five became a favourite of the Emperor Michael III., who made him his colleague. B. murdered him, and was proclaimed emperor. Ile ruled wisely, and began to compile the code of laws completed by his son Leo; he dismissed Photius (q.v.) and re-established the patriarch Ignatius; fought with the Saracens;

helped to convert the Russians, but imported from Holland). His business, always was quarrelling with the Rom. however, was of little profit to him. church; left a book of advice (Κεφάλαια | He died without issue.

Παραινετικά) to his son Leo.
Basilius II. (d. 1025), son of Emperor Romanus the Younger, at whose death the crown was usurped by Phocas, who, six years after, was killed by John Zimisces; the latter took the crown, but acknowledged as his successors B. and his younger brother, Constantine. In 975 they were proclaimed emperors under their

ed with onians. Longo-

bard Dukes of Benevento. In 1014 B. defeated Samuel, King of the Bulgarians. Vladimir, Grand Duke of the Russians, married B.'s sister and received the baptism, 988, abolishing paganism. B. was succeeded by his brother Constantine as sole emperor.

Basilosauros, the generic title proposed by Dr. Harlan for a fossil animal found in the Eocene of N. America, New Zealand, Europe, and Egypt. It is a mammal of the order Cetacea, and is allied to the dolphins and porpoises. Professor Owen has given it the accepted generic name of Zeuglodon.

Basin is a term used in geography to indicate the whole tract of country

drained by a certain river.

Basin, in geology, is a name applied to depressions of the strata occasioned by synclinal dips, especially such as are on a large scale. The tertiary Bs. of London, Hampshire, and Paris, rest on chalk, and the coal-basin of S. Wales rests on old red sandstone.

Basing, John, or de Basingstoke (d. 1252), a remarkable scholar, who received his name from the place of his birth. He studied at Oxford He studied at Oxford, Paris, and Athens; he brought home with him several Gk. manuscripts, and was promoted by Grosseteste to be archdeacon of Leicester. He introduced what was thought (by Mathew of Paris, who writes of him) to be Gk. numerals, but which were neither Greek nor Arabic.

Basingstoke, a market tn., a parliamentary and municipal borough of Hampshire. It is the terminus of the London and Hants Canal. It has manufs. of agricultural implements, clothing factories, etc. The remains of the castle destroyed by Cromwell in

1645 may be seen, and traces of Rom. occupation have been found. Area of parish 4172 acres. Pop. 10,500.

Baskerville, John (1706-75), an Eng. printer, b. at Wolverley in Worcestershire. He kept a writing school. in Birmingham, and in 1745 entered the japanning business. He improved printing in respect to the shape of the japanning business. He improved half an hour to a week. The 'brown printing in respect to the shape of letters (hitherto the matrices had been the coarser work, whilst the 'white

Basket is a vessel made of willowtwice ruches cane anothers

obscure, the connection with the Lat. bascanda' being now discredited. In older times other things than Bs. were made in B.-work, the shields. huts, and boats of the early settlers in Europe being of osier-work, plastered with clay. From the earliest times down to the middle of the 19th century no considerable changes B.-work have taken place, as an old B.-WORE have taken place, as an our hamper excavated near Lewes was manufactured by the same methods as now. In the latter half of the 19th century, however, the character of B.-work was greatly changed, cheap goods made in Europe driving out the old small domestic wares, whilst in the higher classes chairs, tables, etc., were produced of considerable beauty and utility. Of late years the Eng. B. trade has been somewhat better; the Basketmakers' Company, which still exists, is one of the oldest craft guilds of the city of London. Vege-table and fruit Bs., and protective wicker cases for fragile goods, are the prin. articles made in B.-work. No machinery is used in the making of Bs., and consequently a certain amount of natural aptitude, as well as considerable training, are required to make an expert workman. The wages of a B.-maker are from twenty-five to fifty shillings a week, according to ability. Certain species of willow are the

most largely used materials for B.-making. Large quantities are B.-making. Large quantities are grown in Europe, and exported to Great Britain and the United States, but no rods surpass in suitability those of England. The finest speci-mens are grown in Leicestershire and Nottinghamshire, and the valleys of the Thames and Trent. In the early years of the 19th century the English industry was given an impetus by a premium offered by the Society of Arts. The most extensive Eng. willow plantation is at Thurnaston, near Leicester, and is 100 ac. in area. Sev. continental varieties have been introduced into this plantation, with con-

siderable success.

Willows are divided into 'osier' and 'fine' varieties. They are sorted into various sizes, and soaked in tanks to render them pliable, with the excep-tion of the 'uprights,' for periods varying with the size of the rods from stuff 'and the 'buff,' which is boiled ing 3500 sq. ft. At each end of this before peeling, are used for the more oblong space is fixed a pole, 10 ft. in of steel with a cutting edge at each guard their own goal from the opposend. Other tools used by a B.-maker ing team. The ball, which is an inare a shop knife; a picking-knife, to trim off the ends; 'bodkins,' flat trim off the ends; 'bodkins,' flat triangular pieces of iron; shears, and ' dog' for straightening the sticks. The employer supplies a screw-block, or a vice, and a lapboard. These comprise all the tools used, but a common round B. can be made with no other tools than a bodkin and a shop knife. In making a B. the bottom sticks are first woven together, forming the The slath,' or foundation of the B. uprights, stouter rods than the 'woof of the B., are then fixed into the 'slath,' and the other rods woven in and out between them till the required height is reached. The ends which then project are turned down alternately inside and outside the B., thus fastening and completing it. is then made in the same way as the bottom of the B., and is fastened on by pieces of twine or a hinge formed by rods.

Other materials used in making Bs. are cane (calamus viminates), whole or made into 'skains,' whilst the central pith of the cane is largely used in Great Britain and Europe in the manuf, of wickerwork furniture. From splints of various species of bamboo the Chinese and Japanese manuf. Bs. which are marvellous in beauty and delicacy of finish. Bs. are also made from the fronds of the Palmyra palm, Bs. are also made and an extensive establishment is engaged in that industry in the Black Forest. In Spain and Algeria fruit Bs. are made from esparto fibre, in the Seychelles from the fronds of palms, and in other places, Khus-Khus grass, straw, and various species

The chief centres of the industry in England are London, Thurmaston, Basford, near Nottingham, and Gran-tham. The Verdun dist. in France; Sonnefeld, Saxony, and Belgium; Lichtenfels in Germany; Bavaria, the Black Forest, and Japan all produce large quantities of Bs. and B.-work. The chief importers into this country are Japan and France, and an increase in the quantity of Japanese goods imported of late years has been counterbalanced by a large decrease in imports from France.

Basket Ball, a game played by opposing teams of five with an inflated ball, resembling a football. It may be played in the open-air or on a covered floor in a space not exceed-

delicate work. When necessary the height, to which is suspended from rods are divided into 'skains' of metal rings, 18 in. in diameter, a different sizes by a 'cleaver,' a wedge- 'basket' or net bag. The object of shaped tool, then by a kind of spoke- each team is to throw the ball into shave, and trimmed off by a flat piece the enemy's 'basket,' or goal, and to flated bladder covered with leather, about 30 in. in circumference and 20 oz. in weight, must be played with the hands and may not be kicked. Any kicking, or intentional rough play, such as tackling or shouldering, is regarded as a foul; the penalty for which is a free throw to the opposing team, from a distance of not less than 15 ft. from the basket. The game was invented in 1891 at a sitting by James Naismith, of the Young Men's Christian Association at Plainfield, Massachusetts.

Basket-fish are not in reality fish, but echinoderms, of the class Ophin-They roidea. resemble star-fish very greatly in appearance, having the same number of arms, and obtain their name from their habit of colling these arms over their mouths when they fear danger.

Basking-Shark, sun-fish, or Selache Maximus, is one of the largest fishes extant, being sometimes 30 ft. in length. It belongs to the family Lamnideand order Selachii. Itspopular name is derived from its habit of basking near the surface of the water. Despite its great size and strength it is harmless unless attacked.

Basle, see Basel. Baznage, a celebrated Protestant-Fr. family: 1. Nicholas, a religious refugee, who came and settled in Norwich, where he had a congregation. Afterwards returned to France. 2. Benjamin (1580-1652), above, pastor of his father's church at Carentan; a zealous defender of Reformed Church in France. the 3. Antoine (1610-91), son of above; after the revocation of the Edict of Nantes escaped to Holland. Died at Zutphen, where he had a pastoral charge. 4. Samuel (1638-1721), son of above, born at Bayeux; preached here at first, but escaped to Holland with his father. Died at Zutphen. wrote voluminously in Fr. and Lat 5. Henri (1615-95), youngest son of Benjamin, born at St. Mere Eglise; studied for the bar, and became one of the most eloquent advocates in the parliament at Rouen. His works were published at Rouen, 2 vols. fol. 1776. 6. Jacques (1653-1723), son of above, the most celebrated of his family. Studied at Samur under Tanaquil le Fèvre and at Geneva and Sedan. Received into the ministry at Rouen, 1676. In 1685, when the church was

of pine are used.

'n-. it

closed, he received permission to retire to Holland; settled at Rotterdam; was acquainted with many scholars of all countries, including Bayle; he was esteemed by Voltaire. His works were principally theological. 7. Henri (1656-1710), son of Henri above, born at Rouen, followed the profession of his father. On the revocation of the Edict of Nantes took refuge in Holland, where he died.

Basoche, or Bazoche, a corporation of the clerks of the parliament of Paris which existed from about 1303 until the time of the revolution. Philip the Fair is supposed to have been the founder, and to have granted the members certain privileges, among them exemption from the jurisdiction

of the common law.

Basque Roads, The Action in. The Fr. fleet, consisting of fourteen ships, were ranged here, just below the is. of Aix, near Rochefort, when they were attacked by Lord Cochrane, in command of the fireships, and Lord Gambier, April 11 to 12, 1809. There was a panic among the Fr. sailors, twelve ships ran aground, and four were destroyed. Cochrane thought that the victory would have been more complete had he received more active support from his superior, Gambier. The latter was accused of negligence at a court-martial, but was acquitted, and Cochrane was obliged to retire on half-pay. Consult Chatterton, Memorials of Gambier, 1861, and Croft, Britain on and beyond the

Sea, 1909. Basques (Span. Vascongados), a peculiar race dwelling on the slopes of the Pyrenees, occupying on the S. the three Basque provinces of Bis-Alava, and Guipuzcoa, and Navarre in Spain; on the N. the two French departments of Bayonne and Mauléon. The word B. is derived from the Latin Vascones, which word in its Germanic form, Wascones, has also given a name to the Gascons, an artistly different people. entirely different people. Perhaps no race has raised so much discussion as to its origin as that which we are now considering, and the question is still unsettled. There is no doubt as to the extreme antiquity of the Basque settlements on the Pyrenees. over, place names throughout Spain, Sicily, Sardinia, and Corsica, bear a strong resemblance to Basque names, and may sometimes be explained from Basque derivations. It is now received pretty generally that the Basque race is connected with the ancient Iberian or Celtiberian, and dienersed dispersed over the districts d above. Some deny the connamed above. Some deny the con-nection of the B. with the Iberi of the Romans, and make them an indi-genous people who have never ex-

present quarters. A third theory con-nected them with the fair-skinned African races, and would carry their origin back through some of the Berber tribes, through the ancient Libyans to a people represented on the Egyptian monuments. Lastly, may be shortly mentioned a theory deriving them from the inhabitants of a lost Atlantic continent, represented also by the Guanches of the Canary Is., and by a certain fair-skinned West African race. The B. themselves are fairer than the peoples of the S., but darker than the northern races. The race is by no means pure, and so a large range of types is found. As in complexion, so in stature, they occupy an intermediate place be-tween the northern and southern Europeans. Their skulls are both dolichochephalous and brachycephalous, and have certain peculiar characteristics. Collignon tells us that the Basque type differs from all those he knows of Europe and N. Africa. The B. know themselves by the name Euskaldunak, a word formed from the Easkalaunak, a word formed from the name of their language Euskara. The origin of this word is uncertain, but the most probable meaning is 'speaking plainly.' Their tongue stands quite alone among the languages of Europe, as the only remaining example of a consistent incorporative and agglutinative tongue. Though no close connection is to be traced, it shows a remarkable affinity with the Finnic and Magyar families, which

groups, constituting a separate class. It is, as has been said, agglutinative, modifications of meaning and grammatical relations not being expressed either by prepositions or by inflections. Instead, there is a system of post-fixing, various additions being made one after the other. Thus, zaldia, 'the horse;' zaldia,' the horse;' zaldiaren,' of the horse,' etc. There is a lack of general and abstract terms, though there is an abundance of particular terms. The personal pronouns, ni, 'I;' hi, 'thou;' gu, 'we; 'zu,' you,' bear a superficial resemblance to the Hamitic languages.

except in the vadded to show

addressed. Thus extakinat means 'I do not know it, woman;' extakitat (for extakikat), 'I do not know it, man.' The greatest difficulty is the verb, which incorporates with itself not only the pronoun, but also the direct and indirect complements. Thus there are separate forms for 'I give it,' 'I

give it to you,' 'I give them to you,' etc., varying according to the sex of the person addressed. The regular verbal conjugations for the transitive and intransitive are now used but rarely, being reserved for the verbs 'to have' and 'to be' respectively. The language has, on the other hand, developed a conjugation by combining auxiliaries with the participles of all the other verbs. Thus instead of saying dakust, 'I see it,' the form is ikusten dut, 'I have it in seeing.' Originally, there were but two tenses, the present and the imperfect, but a servitive here. conditional future has now formed. There are no clearly defined moods. Syntax is extremely simple, as in all agglutinative languages, and the phrases are short. Composition is used to such an extent that many phrases originally distinct have now become confounded. The dialects The dialects Prince L. L. vary considerably. Bonaparte recognises twenty-five dialects, which fall into eight divisions, which can be again reduced to three great dialects, the eastern, central, and western. The history of Basque literature is short, as no ancient monuments remain. The first printed book in the language was the Linguæ Vasconum Primitiæ, a collection of poems by Bernard d'Echepare. Next to this comes the translation of the N.T. by Licarague, acting under the instructions of Jeanne d'Albret (La Rochelle, 1571), which ranks as the great classic of the language. Before the 19th century, there existed no national literature, but attempts have now been made to form one. The few hundreds of volumes printed in Basque consisted chiefly of translations from French, Spanish, or Latin. The B. are of a spanish, or Latin. The B. are of a deeply religious nature, and their country has produced two great champions of the faith, Ignatius Loyola, founder of the Society of Jesus, and Francis Xavier, the great missionary. Most of their older literature, though no MS. exists older than the 18th century, is of a religious nature. Their legends and nectorales nature. Their legends and pastorales, a kind of open-air drama, are mainly derived from the French. The B. have ever shown the ability to retain their independence. Though the Romans conquered them, they did not assimilate them in any way. The Visigoths did the same and no more. At the beginning of the 10th century the B. to the S. of the Pyrenees were brought into the kingdom of Navarre, but they still retained their fueros, or assemblies, in which they ruled themselves to agreat extent. An unsuccessful attempt to abolish the fueros was

engaged in agriculture and fishing, and many of them have emigrated to the Newfoundland cod-fisheries. Their great agility was remarked in the 8th century, and still remains a characteristic. They make excellent soldiers and sailors, and their ancient renown as pirates is continued by their success as smugglers. They are extremely conservative in dress, extremely conservative in dress, customs, and tradition. The dress of the men is simple and graceful, consisting generally of the knickers, girded with a large red belt, open waistcoat, short tight coat, and care-lessly tied kerchief round the neck, the whole surmounted by the notices. the whole surmounted by the national beret, a red or blue cap. The number of B. in Europe is about 600,000, of whom about 125,000 are in France, and the rest in the Spanish provinces. Of late years there has been a great deal of emigration, especially to S. America, where it is estimated that there are at present no less than 200,000 B. scattered over the Argen-200,000 B. scattered over the Argentine Republic, Mexico, and Cuba. For the literature, see J. Vinson's Essaid d'une bibliographie de la langue basque (Paris), 1891; for the language, W. van Eys's Grammaire comparée des dialectes basques, 1879, and Dictionaire basque-français (Paris), 1873. See also Michel's Le pays basque, sa population, sa langue, 1857; Vinson's Les basque et le pays basque, 1882; Inchauspe's Le peuple basque: sa langue, son origine, etc., 1894; A. Keane's Man, Past and Present, 1899. Basra, or Bassora, is a city of Aslatic Turkey, on the western bank of the Shat-el-Arab, the united stream of the Tigris and the Euphrates, in 47° 34′ E., and 32° N. It is surrounded by a wall 10 m. in circumference, and from 20 to 25 ft. thick. B. does a considerable Traisit trade between

Basra, or Bassora, is a city of Asiatic Turkey, on the western bank of the Shat-el-Arab, the united stream of the Tigris and the Euphrates, in 47°34′ E., and 32° N. It is surrounded by a wall 10 m. in circumference, and from 20 to 25 ft. thick. B. does a considerable transit trade between Turkey, the Persian dominions, and India; since steamer communication with Bagdad and Bombay was instituted its prosperity has considerably increased. Its chief exports are dates, camels, horses, wool, and wheat; its imports coffee, indigo, rice, etc. The settled pop. cannot be estimated with any exactitude, as it is frequented by merchants and nomadic tribes. It has been the residence of a British consul since 1898. The ruins of the ancient Bassora, formerly a centre of learning, founded by the Caliph Omar in 636, lie about 9 m. S.W. of the tn. Bass-relief, or 'low-relief,' is a term used to denote forms of mural decora-

Bas-relief, or low-relief, is a term to the S. of the Pyrenees were brought to the S. of the Pyrenes were brought they still retained their fueros, or assemblies, in which they ruled them-selves to agreat extent. An unsuccessful attempt to abolish the fueros was made in 1832, but they were finally done away with in 1876. The B. are

have fallen into desuetude, and 'B.' is now used as a general term to signify all 'relief' sculpture as dissignify all re in the

ians appear people to

practise this art, but the Persians, Assyrians, and Babylonians also represented their exploits and divinities this way. These early Bs. do not reach a very high standard, the figures being very stiff and regular in outline. After the time of Crassus, the marble sarcophagi at Rome were usually decorated at the ends with B., many well-known legends being thus portrayed. The Elgin marbles in the British Museum, which belong to the class formerly known as altorilievo, are the best ancient example of this class of art, whilst the Bs. of Canova, Flaxman, and Thorwaldsen have been noted in modern times. Owing to the need for a background, Bs. have always been intimately associated with the architecture of temples, palaces, etc.

Bass (It. basso, low), or Base, is a musical term denoting the lower part in the harmony of a composition, the lowest pitched of a class of instruments, or the lowest male singing voice. The B. part is only surpassed by the melody in the freedom of its movements and the richness of its effect. It contains more frequently the fundamental notes of the chords, and the organ-point ' is formed on it. ordinary compass of the B. voice is from F below the B. clef to D above it.

varieties are marine, while the can comprise sev. fresh-wate The common bass of the fam:

ranidæ is known as Morone lupus, receiving its specific name from its wolf-like voracity; it is common to the Mediterranean. Two species of black B. afford sport for American anglers; they are the Micropterus salmoides and M. dolomieu of the sunfish family, Centrarchidæ. Nearly all B. are much valued for food.

Bass. Strictly speaking, it is the inner bark of a lime-tree; hence the word has been applied to certain articles made of fibre, such as a hessealt hashed on does not be seen a part of the such as a large of the second to the hassock, basket, or door-mat. The word is common in Scotland, where it is used chiefly with regard to doormats.

Great and Little, are two Bass, ledges of rock off the coast of Ceylon in the Bay of Bengal. Both have lighthouses, and Little B. is the more dangerous.

Bass, George (d. 1812), an Eng. ex- delirium he

plorer, was born at Asworthy, Lincolnshire. He was apprenticed to a surgeon at Boston, Lincolnshire; joined the navy and became surgeon to to Australia, and explored the coast of New S. Wales and Tasmania with Flinders, 1795-1800. B,'s Strait owes its name to him.

Bass, Michael Thomas, son of M. J. B. of the famous brewing firm of Burton-on-Trent, was b. in 1799. He acted as traveller for the firm at first. He sat in parliament as a Liberal from 1848 to 1883. He declined a baronetey and a peerage, both of which were afterwards conferred on his son, M. A. Bass.

Bassa, Baffa, or Buffa, a scaport of Liberia, W. Africa, between Cape Mesurado and Cape Palmas.

Bassadore, see Basidu,

Bassam, Grand, a Fr. port of the Gold Coast, Upper Guinea, Africa which produces gold, palm-oil, and ivory.

Bassandyne, Bassendyne, or Bassinden, Thomas (d. 1577), a printer, bookbinder, and bookseller at the Nether Bow, Edinburgh. He printed the earliest translation of the N.T. produced in Scotland in 1576, and also an ed. of Lindsay's works. See Dobson, History of the Bassandyne Bible, 1887.

Bassano, an It. city in the prov. of Vicenza, in 11° 43′ E., and 45° 46′ N., on the R. Brenta. The bridge over the river, 180 ft. long, was built by mozart gave it great prominence in opera as a solo part.

Bass, or Basse, the name applied to many perch-like fishes of the sub-order Acanthopterygii. The sub-order Acanthopterygii. The sub-order are many particles are marine with the sub-order a Palladio, as was also one of the six

rine and the olive are there are extensive anufs. of cloth, paper,

porcelain, straw hats, and wax. On - eated Sept. 8, the Austr near B., and tle of Duke of Pop. 14,000. 1809.

Bassano, commonly called Giacomo da Ponte (1510-92), sent by his father to Venice to study the Venetian School of Painting, met with extraordinary success. Tasso and Ariosto sat to him for their portraits. Sir Joshua Reynolds accuses him of painting boors of the dist, and calling them patriarchs and prophets. His best works a Christ 'at Pa Christ.' He

cesco, commo B. (1548-91), and achieved practising at

window and was killed by the fall. 2. and Eaux-Chaudes. Marble, copper, window and was killed by the fall. 2. and Eaux-Chaudes. Maple, copper, Giovanni (1553-1613), chiefly known and iron are some of the mineral propagation of the same of the mineral propagation of the cap is Pau, and the pop. Leandro (1558-1623), distinguished himself as a portrait painter, but painted historical and sacred subjects sized hound with a long body, short occasionally. 4. Girolamo (1560-1622), much employed by his father has been introduced into England. in copying, but contributed an It was formerly used in the baiting of original piece of 'St. Barbara and badgers, but is now employed in deerthe Virgin' at Bassano. The work of hunting and in hare-hunting, in which all the Bs. shows more manual than it shows its persevering but slow

(d. 1568), was educated at Glasgow, and afterwards travelled, but finally black and white on the body settled at Paris, where he taught Basseterre, a scaport of mathematics and astronomy. He Indies, on the S.W. coast of the second sec wrote various works on mathematics, astronomy, and arithmetic. some of pop. 8500. which are now only known by the titles which have been recorded. One 1577, which appears to have been translated into Lat. by De Tournes (Tornesius) under the title of Astronomia J. Bassantini, Scoti, Geneva,

nomia J. Bassantini, Scott, Geneva, 1559, reprinted 1613. His planetary system is that of Ptolemy.

Basse, or Bas, William (d. c. 1653), an Eng. poet. He was a retainer to Sir Richard Wenman of Thame Park. Oxfordshire. He wrote poems on country life; the author of Sword and Buckler, 1602; Great Brittaines Sunnesset, 1613. He is chiefly remembered for his epitaph on Shakespeare, and for a song which is quoted

in Walton's Compleat Angler.

Bassein, a seaport of Lower Burma, and cap. of the district of B., on the riv. of that name, in 16° 46' N. and 94° 48' E. Prin. export is rice,

and coal, salt, cotton goods, etc., are

and coal, sait, cotton goods, etc., are imported. Pop. 31,000.

Bassein, a tn. in the presidency of Bombay, British India, 28 m. N.E. of Bombay. It was ceded to the Portuguese by King Gujaret in 1534, and remained in their possession until taken by the Mahrattas in 1739. It was taken even by the British in 1818. was taken over by the British in 1818. Pop. 12,000.

Basses-Alpes, see Alpes, Basses. Basses-Pyrénées, a frontier dept. of France formed out of the anct. provs. of Béarn, Navarre, and Gascoigne. It is bounded on the N. by Landes and Gers, on the S. by the Pyrences, E. by Hautes-Pyrénées, and W. by the Bay of Biscay. The principal riv. is the Adour, which is fed by many mt. οſ torrents. About one-fifth of the area is covered with dense forests, marshes are common, and pasture-land is good. The chief product is the maize; wheat, vines, chestnuts, and flax are also cultivated. Salt and other mineral springs are numerous, the most popular being Eaux-Bonnes

crooked legs, and heavy head, which mental capacity.

Bassantin, or Bassintoun, James rough-haired varieties, but the colournature. There are both smooth and ing is usually tan on the head and

> ght Basseterre, a scaport of the W. He Indies, on the S.W. coast of the Is. of St. Christopher, of which it is the cap.;

Basset-Horn (It. corno di bassetto), a wind musical instrument invented of his works which was best known in Germany in 1770. It is similar to a was a Discours Astronomique, Lyons, clarionet in fingering, but contains clarionet in fingering, but contains additional low keys. The scale emadditional low keys. The scale embraces nearly four octaves, from C, the second space in the base, to G in altissimo, including every semitone; but its real notes, in relation to its use in the orchestra, are from F below the base staff, to C, the second leger line above the treble. 'Corno di Bassetto was an early pseudonym of

Mr. G. Bernard Shaw. Bassia is an interesting genus of tropical plants of the order Sapotacce found chiefly in India. B. butyraceæ, the Indian butter-tree, grows to a height of 50 ft., and its seeds yield a fat-like substance akin to vegetable butter. B. longifolia, the Indian oil-tree, has a yellowish fruit which gives valuable oil for lamps and soap, and is used in cookery by poor Indians. The flowers are fleshy and edible, the wood hard and durable as teak. latifolia, the mahua, mahwa, or mowa. has hard and strong wood, and the flowers yield by distillation a strong intoxicating spirit. B. pallida produces a gutta-percha.

Bassières, Jean Baptiste, Duke of Istria (1768-1813), Fr. marshal. In the Constitutional Guard of Louis XVI. he took part in the Spanish War. He won honour in the Eastern Pyrenees and the Moselle. In 1796 he served under Napoleon as captain during the Italian campaign. A distinguished career saw his return with Napoleon from Acre and Aboukir, when he was second-in-command of the Consular Guard. He was made marshal of France in 1804, and was created Duke of Istria five years later.

Bassigny, a dist. in the former prov. of Champagne, France, now forms parts of the depts. of Haute-Marne, Meuse, and Aube. Its chief towns were Langres, Chaumont, and Bour-

bon-les-Bains.

Bassinet, or more properly Bascinet, with all the masters save Handel, was the name of a small, close-fitting several having written concertos for helmet like a basin, used in the 14th the B. with orchestra.

Century. (See Bascinet.) The term

Bassora, see Basra. is now used for a perambulator or child's four-wheeled carriage, and also sometimes applies to a cradle with a wicker hood.

Basso di Camera, a double-base, or contrabasso, reduced in size and power, but not in compass. It has four strings, two of gut and two covered with silver wire, all proportionately thicker than those of the violoncello, and tuned in fifths, to the same literal notes as the violin, but two octaves lower than the latter.

Bassompierre, François de (1579-1646), marshal of France and captaingeneral of the Swiss Guard, born in Lorraine of a noble and military family; caught the attention of Henry IV. with whom he soon became a great favourite: took part in the civil wars (mostly of religious origin), appointed captain-general of the Swiss Guards; under Louis XIII. ambas. to Spain; 1626 sent to England by Richelieu to enforce the marriage treaty between Henriette Maria and Charles I. in so far as it related to toleration of Roman Catholic worship. Supported Mary de Medici against Richelieu, at whose instance he was arrested and sent to the Bastille for twelve years; released at Richelieu's death; died of apoplexy three years

It. fagotto), a wood wind instrument with a double reed mouthpiece, forming the bass of the oboe family. direct ancestor was the bass pommer, which was straight and 6 ft. in length; the tubes of which the B. is formed resemble a bundle, hence the Ger. and It. names for the instrument. It names for the instrument. It consists of five pieces, joined together into a wooden tube 93 in. long, which has a conical hore tapering from a diameter of 11 in. at the bell to $\frac{1}{10}$ in. at the bell to the long joint, the wing, the butt, and the crook, to the last of which the mouthpiece is attached. The performer holds the instrument in a diagonal position, passing its strap around his neck; the notes are produced by seven holes, and sixteen, seventeen, or nineteen keys. The mechanism and fingering are very intricate. From an acoustic point of view the B. is a badly-constructed instrument, but in practice it affords the artist a scope surpassed only by hemp, and jute are sold for various ients. Its comthe stringed instruments. comprehends It has been a favourite instrument. He afterwards studied in the Univer-

Bassora Gum, so called because it comes from Bussorah on the Gulf of Persia, is a gum said to be derived from plum and almond trees, and is often used to adulterate gum tragacanth.

Basso-rilievo, sec Bas-relief. Bass Rock, a conical insular rock at the mouth of the Firth of Forth, 3 m. from N. Berwick. It is about a mile in circumference, and rises to a height of 315 ft. It has an imposing aspect with its precipitous lofty walls; a huge cavern runs from the N.W. to the S.E., which is explorable at low tide. It is inaccessible save on one shelving not is maccessine save on one snerving point on the S.E. side. Purchased by the English gov. in 1671 from the Lauder family, the eastle was converted into a state prison, in which sev. eminent Covenanters were con-The rock was held for King James II. by sixteen Jacobites (four of them former prisoners on the rock) against a small army of King William III. After a siege of three years (1691-94) the plucky but diminutive garrison was compelled to surrender owing to provisions running short. spirited resistance secured The fort was honourable terms. demolished in 1701. The rock is now private property, being farmed for the sea-fowls that abound here in the

723; B.'s breeding season.

Bass Strait is situated between r. Fagott. Australia and Tasmania, and was named after Surgeon George B. of H.M.S. Reliance, who sailed round Tasmania in 1798. The strait is studded with islands and coral-reefs. so that navigation is rendered difficult.

Bass Tuba, another name for the B. saxhorn in F or E flat. It is sometimes applied to the cuphonium.

Bassus, a genus of hymenopterous insect of the family Braconide. They are closely allied to the Ichneumon flies, have four wings, long and nar-row bodies, and frequent the flowers of umbelliferous plants.

Bast, in its two forms soft and hard, constitutes what is known in botany as phloem. The soft B. consists of sieve - tubes, companion - cells, and parenchyma cells, and the sieve-tubes are employed in carrying foodmaterial from the leaves to the rest of the plant; the hard B. is composed of long, narrow B.-fibres resembling wood-fibres, and parenchyma cells. In commerce the B. fibres of flax.

purposes.

Bast, Frederick James, was born in rising from B flat below the bass staff. the state of Hesse-Darmstadt, c. 1772

sity of Jena, under Professors Gries-| within twelve months after the birth Symposion, which was followed in child's support within twelve months. 1796 by a specimen of an intended and the justices, on the imother's new ed. of the letters of Aristænetus. evidence being corroborated, may

Bastar, or Bustar, a feudatory state of India in the Central Provs. The R. Indravati traverses it, there are employed erroneously in speaking of many hills and forests, but the whole the balon-sinister (q.v.).

dist. is unhealthy and ill-populated. Bastardy, Declarator of, is a suit The cap. is Jagdalpur, and the pop. of the state about 300,000.

Bastard means a person born out of lawful wedlock and (where allowable) English law a child born during the marriage of his parents is legitimate, even if the child is begotten out of even if the child is begotten out of matrimony. The fact of birth during marriage or within a certain time after the husband's death raises a strong presumption of legitimacy, rebuttable only by proof of non-access on the part of the husband. By the Scotch law and most continental vertages, which are based on the systems, which are based on the canon and civil laws, a B. may be legitimised either by the subsequent marriage of his parents, or by special dispensation not affecting the rights of third parties. Civilly the B. is filius nullius for most purposes, and is therefore heir to none of his reputed ancestors and entitled to no share of the personal property of his reputed parents if they die intestate. Nor has he a surname until he acquires one by reputation. But even the English law admits a B. to be the son of his putative father and his natural mother for purposes of main-tenance. A B. takes as his primary settlement for poor law purposes the place where he was born, but a legitimate child takes his father's bp. The English law relating to the maintenance of Bs. is to be found in a number of statutes, the nature of the changes in the law indicating that no settled principle has regulated our legislation on this subject. By the Bastardy LawsAmendmentAct, 1872, the mother of a B. may summon the putative father before petty sessions

bach and Schutz. His first literary of the child, or at any later time if he essay was a commentary upon Plato's is shown to have contributed to the B.'s literary labours were devoted to adjudge the man to be the putative verbal criticism. His Lettre Critique father and order him to pay five verbal criticism. His Lettre Critique a M. J. F. Boissonade sur Antoninus shillings a week for its maintenance. Liberalis, Parthenius, et Aristenete, Such order becomes invalid after the Svo, Paris, 1805, is an example of the style of his studies, and his erudition.

Basta, Georg, Baron of Sult (1500-the maintenance be paid until the 1607), an Austrian general, born at Rocca, S. Italy. He served under the maintenance be paid until the 1607, an Austrian general, born at Rocca, S. Italy. He served under the maintenance be paid until the maintenance. The may in their original order direct that may in their origi in preference to the putative father.

Bastard Bar is a name sometimes

Bastardy, Declarator of, is a suit which holds in Scottish law for the disposal of the effects of a deceased illegitimate child. The recipient of the estates must receive a deed of gift not subsequently legitimated. By the from the crown to state that he is entitled to them, and the defender is represented by any person or persons who could pretend to heirship if the owner had been born in wedlock.

Bastennes, a Fr. vil. in the dept. of Landes. It is noted for its rich as phalte mine and two mineral springs.

mine and two mineral springs.

Basti, or Busti, a tn. of the United Provs., India, 115 m. from Lucknow; pop. about 15,000.

Bastia, a tn. and scaport on the E. coast of the is. of Corsica, 95 m. N.E.

of Ajaccio, the present cap. B. was formerly the cap., and still has the chief trade, mainly in soap, leather, liqueurs, and wax. Pop. 22,000.

Bastian, Adolphe (1826-1905). Ger. traveller and ethnographer, was born at Brême. He was educated as a physician, but in 1851 he started on the first of his many voyages. This first voyage lasted for eight years, and he travelled round the world in the course of it. Between 1864 and 1866 he visited the Indian Archipelago and Japan, the desert of Gobi, the Ural and Caucasus Mts., and the Caspian and the Black Seas. He was created Professor of Ethnology and admins-trator of the ethnological museum at Berlin, and later was president of the Berlin Anthropological Society. He organised the station of Chinchoxo on the coast of Loango, and completed the ethnographical collections of the Royal Museum at Berlin. In 1875-6 he visited Equatorial America, and between 1875 and 1880 he went to Australia, Polynesia, and Central and S. America. In 1889-91 he travelled in the National Guard after 'the July from Central Asia to America. His days,' but for his share in the riot on numerous works are connected with ethnology and anthropology, and throw light on many questions of linguistics, religions, and geography. His chief work, The Peoples of Eastern Asia. was published 1866-67.

Bastian, Henry Charlton, an Eng. Bastian, Henry Unariton, an Eng. biologist and physician, was born at Truro in 1837. He was educated at Falmouth and University College, London, taking his M.A. in 1861, his M.B. in 1863, and his M.D. in 1866. He was assistant curator in the University Museum from 1860-63, and from 1864-66 head officer in Broadmoor Criminal Lunatic Asylum. In the latter year he was appointed the latter year he was appointed lecturer on pathology and assistant physician at St. Mary's Hospital, in 1875 professor of pathological anatomy at University College, and from 1887-95 he was professor of medicine and clinical medicine. He has contributed analysis of the contributed and contributed and contributed and the contributed and contribute tributed largely to medical and other periodicals, and to Quain's Dictionary of Medicine. His more important works include: Modes of Origin of Lowest Organisms, 1871; Beginnings Life, 1872; Evolution and Origin of Life, 1874; Brain as an Organ of Mind, 1880. He has advocated the theory of spontaneous generation. Bastiat, Frederic (1801-50), a Fr.

economist, was born at Bayonne, June 29. He was educated at Saint-Sever and Sorèze Colleges, and in 1818 entered the counting-house of his uncle. This occupation proved distasteful to him, and in 1825 he retired to a property at Mugron, of which he became the owner on the death of his grandfather. Here he passed his time in farming and meditation until the revolution of 1830, which he welcomed with enthusiasm. He became a juge de paix for his canton in 1830, and in 1832 a member of the General Council for the Landes. He followed the progress of Cobden's Anti-Corn Law League with interest, and formed a parallel association in France. After the revolution of 1848 he was elected to the constituent and legislative assemblies, and pub. many brochures against socialism and protection. He died at Rome, Dec. 24, of a lingering disease. His pamphlets against socialism and protection are considered by many to be masterly; his great economic work was cut

short by death. Bastide, Jules (1800-79), a Fr. politician, was born at Paris on Nov. 22. He studied the law, but after a time became a timber merchant. He was a member of the Fr. 'Carbonari,' and took part in the revolution of 1830. cordially detested by the populace as He was given an artillery command an emblem of tyranny. The capture

the occasion of Gen. Lamarque's the occasion of ten. Lamarques funeral in 1832 he was sentenced to death, and fled to London. He was acquitted on returning to Paris in 1834, and after founding the Reme Nationale in 1847 with P. J. Buchez, he became minister of foreign affairs in 1848, but at the end of the same year retired into private life, dying on March 2.

Bastide-de-Clairance, tn. of Basses-Pyrénées dept., France, 13 m. S.E. of Bayonne. It has copper and ironmining industries. Pop. 2000.

Bastide-de-Serou, a tn. of Ariège dept., France, 9 m. N.W. of Foix. The chief industry is the making of glass-melting pots, for which yellow and grey clay is found in the neighbourhood. Pop. 2500.

bournood. Pop. 2000.

Bastien-Lepage, Jules (1848-84), a
Fr. painter, was b. in the vil. of Damvillers, in the Fr. dept. of Meuse, on
Nov. 1. There he passed his childhood, and in 1867 went to Paris to
the Ecole des Beaux Arts, where he
studied under Cabanel. He exhibited
in the Salons of 1870 and 1872, but
without any conspinency success. In without any conspicuous success. In 1874, however, his 'Song of Spring,' a study of rural life, attracted much attention, and his succeeding pictures served to establish his fame. In 1874 he gained a third-class medal with his 'Portrait of my Grandfather, and in the following year his picture 'Angels appearing to the Shepherds' gained the second prix de Rome. His picture called 'The Hayfield,' which he first exhibited at the Salon of 1877, and which is now in the Luxembourg, is a typical example of his realistically truthful and simple style. He was now re-cognised as the leader of a school, and he gained the Cross of the Legion of Honour in 1879 by his portrait of Mdme. Sarah Bernhardt. He exhibited in the Royal Academy of His health, which had been failing him ever since he served under the painter Castellani as a franctireur in the war, broke down, and he went to Algiers to recuperate. He

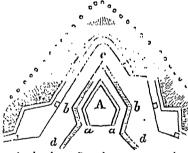
grew worse, however, and returned to Paris, dying on Dec. 10.

Bastille is the Fr. name for any castle with towers, but as a proper name it signifies the old state prison and citadel of Paris. This was built about 1370 by Charles V., but came to be used as the place of confinement for persons of rank who had fallen out with the court or the king, and also for those writers who attacked the gov. or any powerful person. It was this fact which caused it to be so

of the B. on July 14, 1789, was the commencement of the Fr. Revolution. The mob, after attempting to negotiate with the governor, Delaunay, attacked it, and by the help of artillery captured it. Delaunay was lynched as he was being taken to the hotel-de-ville, and the B. was completely destroyed by the mob. A column in the Place de la Bastille now marks its site.

Bastinado (Fr. bâton, cudgel), the European name for an oriental form of punishment which consists in inflicting blows with a stick upon the victim, generally on the soles of his

feet, sometimes on his back.
Bastion (Old Fr. bastir, to build), in fortifications, is a mass of earth which stands out from the rampart of which it forms the main portion. Bs. are faced with turf, or stone, and consist of two flanks, which serve to protect the neighbouring Bs., and two faces, which meet in an angle towards the enemy, and command the outworks



, bastion, Barcelona; a, curtain angle; b, shoulder angle; c, salient angle; a, a, gorge; a, b, flank; a, d, curtain; b, c, face.

and the ground infront. The fifth side, which is open to the interior, is known as the gorge. Bs. are built in a variety of ways. Some have walls quite solid, others have a space in the middle; some are 'double,' that is, they have extra flanks, and faces, raised behind the other on the same plane; some have low ramparts outside, some casemates, or orillons, etc.

Basurhat, or Bussirhat, a tn. of Bengal, 30 m. from Calcutta; pop. about 15,000.

Basutoland is a dist. in the E. of S. Africa, bounded on the N. and W. by the Orange Free State, on the S. by Cape Colony, and on the E. and N.E. by Natal. The surface is hilly, and the average height above the sea is over 5000 ft. The Maluti Mts. and

country into three almost equal dists .: the head-waters of the Tugela R., the Kornet Spruit, the Caledon R., and the Senka R. lie in B. The climate is temperate, and the average rainfall is about 32 in. per annum. The country is very fertile, and large quantities of maize and wheat are grown. ponies of B. are hardy and exceedingly sure-footed, whilst sheep and cattle are also reared. There are few forests, and much of the country is uninhabited. The natives are intelligent, industrious, and brave; their fast-nesses in the mts. are almost inaccessible. After a war with the Free State, the country was placed under British protection in 1868, and annexed to Cape Colony in 1871. After the rebellion in 1880, the country came under the direct administration of the imperial gov. in 1884. Its area is 9720 sq. m., and pop. 350,000.

Basyl, or Basyle (Gk. Basis, base, ιλε, matter), a name formerly in use to indicate a metal or group which

acts as a base.

Bat, The, or Chiroptera, forms a large order of mammals, nearly related to the Insectivora (hedgehogs, shrews, etc.), but differing from them in hav-ing the power of bird-like flight and consequent adaptations. physical The fore-limbs are greatly developed, and between each of the four fingers is a skin expansion which extends to the side and the hind legs; another expansion spreads from the tail to the hind legs. The thumb does not share in the flight-modifications, and is clawed, its uses being those of attach-ment and occasional efforts to walk. The shoulder girdle and breast-bone are very large, the latter extended to a keel, while the pelvic girdle is small The bones of the limbs and weak. have large medullary cavities, but other bones are slight, and the ribs are much flattened. The females have either one or two pairs of thoracic mamme, and give birth usually to a include Tamina which they carry with then communicated no which are born which The view by sense is remarkably strong, contradicting absolutely popular opinion, while the senses of smell, taste, and hearing are all present to a large degree. Feeling they possess intensely, the membranes of the nose and the wings being filled with numerous nerves in addition to many blood-vessels; the experiments of Abbé Spallanzani in 1775 proving that Bs. deprived of sight and hearing are yet able, in a room across which have been stretched innumerable strings, to fly without coming into contact with one of them. Many have curiously-shaped fleshy the Molappo Mts., which are parallel appendages called nose-leaves round to the Quathlamba range, divide the nose and mouth. and these are

peculiarly sensitive. The ears of all Bs. are very large, prominent, and mobile. Bs. inhabit all parts of the globe except the coldestregions, but abound chiefly in the tropics. In habit they are nocturnal, sleeping during the day head downwards, holding to some object with their curved claws. They hibernate in belfries, caverns, and forests, and in some cold climates, such as that of Canada, they migrate to warmer places for the winter season. At twilight they search for food, which in most cases consists of insects, in some of fruit, and of a minority of the blood of mammals. They are classified according to the food they eat into Megachiroptera, or frugiverous forms, and Microchiroptera, or insectivorous forms. To the first class belong the Pteropus edulis, or flying fox, the largest known species of bat, which sometimes measures 5 ft. across the wing; Epomorphus of Ethiopia; Cynonycteris of the Egyptian pyramids. the second class belong the genera Rhinolophus, or horse-shoe B.; Nycteris, or leaf-nosed B.; Megaderma, of which M. lyra, the lyre-bat, attacks other Bs., frogs, and small mammals, and sucks their blood; Vespertilio, the common naked-faced B. of most countries; Vesperugo, of which V. pipistrellus, the pipistrelle, is well known; Synotus, of which S. bar-bastellus is the barbastelle. There There are in all nearly 100 genera of Bs., and among others should be mentioned the true vampires, or blood-suckers; these belong to the Desmodus and Diphylla, and will attack even men and horses; the genus Vampyrus, to which the repulsive V. spectrum is attached, consists strangely enough of frugivorous and insectivorous animals. See G. E. Dobson's Catalogue of the Chiroptera in the British Museum, 1878.

Bataan, a prov. of Luzon, Philippine Is., on the W. of the Bay of Manila; pop. about 50,000.

Batac, or Batag, a tn. of Luzon, Philippine Is., in the prov. of Ilocos Norte, near Laoag. It is situated in a fertile dist., and has sugar factories. Pop. 20,000.

Bataks, see Battas. Batala, or Butala, a tn. of the Amritsar div. of the Punjab; pop. about 30,000.

Batalha, a tn. in Estremadura, Portugal, 7 m. from Leiria. It contains a famous Dominican convent, and received its name from King John L's victory at Aljubarrota in 1385. Pop. 4000.

Batan, a seaport of Panay Is. in the

Batangas, a tn. of the Philippines in the is. of Luzon, cap. of the B. proy., and 58 m. S. of Manila. A wellbuilt tn., it was founded in 1581, and contains a palace, the residence of the alcade. It has a considerable trade in native produce with Manila. prov. itself is mountainous in character. The pop. of the prov. is about 380,000; of the town, 40,000.

Batara, the name given by D'Azara to the bush shrikes which form the genus Thamnophilus. They come from S. and Central America, and belong to the family Formicariide. They come The males are usually black above, whitey-brown beneath, and in length do not exceed 13 in. T. nævius has a rounded and comparatively short

tail; T. vigorosii has a large reddish crest, blackish at the apex. Batatas, now included in Ipomau. is a genus of Convolvulacee, found in warm countries. The name is Malayan, and the plant originally occurred wild in the woods of the Malay Archipelago, but it is now wide-spread, and *B. edulis*, sweet potato, is cultivated in tropical America. The tuberous roots are sweet, mealy, and wholesome, but slightly laxative, and are eaten as potatoes, plants which became their substitute in Europe and appropriated their name.

Batavi, an ancient race of Celts or Germans, mentioned by Tacitus as a branch of the Chatti, a great German tribe. They inhabited the land between the Rhine, Waal, and the Maas, called the Insula Batavorum. When subject to the Romans they received many advantages from them, and their cavalry was frequently used by

their conquerors. Batavia, name of the capital of the Dutch East Indies situated in prov. of same name, on the N.W. coast of Java. It is near the mouth of the Tjiliwong, or Jaccatra, the latter name also being that of the native town on also being that of the nature town on the site of which B. was built by the Dutch early in the 17th century. The town was for many years proverbially unhealthy, for the early Dutch colonists had made, as it wore, a miniature Holland of B., the town being intersected by a network of canals. What added to the unhealthiness of the town in its earlier days was the city wall, but this was demolished early in the 19th century when B. fell into the hands of the French. A new town (Welterreden) has been built inland on higher and more healthy ground about 21 m. from the old, and as the bay on which B. stands is yearly becoming more shallow, the new port of Tanjong Philippines; pop. 14,500.

Batang, or Battam, an is. opposite
Singapore, in the Malay Archipelago.

Priong has been constructed (1880).
6 m. to the N.E. B. has an export trade of nearly £2,000,000 annually

about half of which is with Holland. Pop., city, 150,000; prov., 1,300,000.

Batavia, U.S.A., cap. of Genesee co., New York, situated on Tonawanda Greek, about 40 m. N.E. of Buffalo. Manufactures farm implements. The

Manufactures farm implements. The state Institute for the Blind is situated here. Pop. 11,000.

Batavian Republic, the name by which the Netherlands were known from May 16, 1795, till June 8, 1806, i.e. from the conquest of the country by the French till the appointment of Louis Bonaparte as king of Holland.

Batchian, Batshian, or Batjan, an is. of Dutch E. Indies: one of the Ternate group of the Molucca Archipelago, S.W. of Halmahera Is. Area 850 sq.

It is mountainous and fertile, but

m. It is mountainous and fertile, but is only inhabited on the coast. It was captured from Spain in 1610. chief tn., Batchian, has a pop. of 2000.

Bateman, Sir Frederic (1824-1904), an English physician and scientific writer. He graduated, 1850, at the Aberdeen University, and became a fellow of the Royal College of Physicians, 1876. He was knighted in 1892. Author of Aphasia and the Localisation of Speech, 1870: The Idiot: his Place in Creation, etc.

Bateman, John Frederick, La Trobe (1810-89), civil engineer, was born near Halifax. Though he devoted some attention to such problems as how to measure rainfall, and wrote technical pamphlets, his life work was the construction of reservoirs and water-works. Owing to his suggestion, Manchester obtained its water supply from Lake Thirlmere and Glasgow from Loch Katrine. also superintended the construction of the water-works of many other

of the water - works of many other large towns, and was responsible for the water schemes of Buenos Ayres, Naples, and Constantinople.

Bateman, Kate Josephine (b. 1842), daughter of Col. B., theatrical manager, was born in Baltimore, U.S.A., and married George Crowe, former editor of the London News, in 1866. Her first appearance on the stage was at the age of four in the Robes was at the age of four, in the Babes in the Wood, but later she played chiefly in Shakespearean and classical She acted at the St. James's drama. Theatre of London in Richard III. in 1851, but her first London success was as Leal, in Deborah, at the Adelphi, in 1863. Other successes were in Medea, 1872: Macbeth with Henry Irving in 1875; Queen Mary, 1876, Colonel Newcome, 1906; False Gods, 1909. Since 1892 she has conducted as a reallest selection. ducted an excellent school of acting.

Bateman, Sydney Frances (1823-1), actress and dramatist, was brought up in Ohio. Her two most popular plays were Self, a comedy, and a tragedy, Geraldine. Coming to

England she successfully undertook the management of the Lyceum, and later of Sadier's Wells.

Bateman, William (c. 1298–1355), shop of Norwich, and founder Bishop of Norwich, and founder of Trinity Hall, Cambridge. He studied civil law at Cambridge; in 1328 became archdeacon of Norwich. his birthplace; his ability recom-mended him to Pope John XXII., and after a period of residence in the papal court, he became auditor of the pointed him dean of Lincoln about 1340. During the wars in France he undertook diplomatic negotiations between Edward III. and the Fr. king, 1343-54. In 1344 he succeeded Antony Beke as bishop of Norwich, and was consecrated by the pope at Avignon. In 1350 he founded a college at Cambridge, which he called 'Trinity Hall' for the purpose of training students of canon and civil law to fill the places of those clergy who had died during the Black Death. B. died at Avignon, possibly through

poisoning, when on an embassy to negotiate peace with France.

Bates, Harry, sculptor (1850-99), was born in Herts. Having won, after four years' study, the travelling scholarship of £200 at the Academy Schools, he went to Paris in 1883 to study under Rodin. In 1892 he was elected A.R.A. 'Love and Life' is considered his masterpiece, whilst vigour and grace in composition and refined technique characterise both his portraits and his subjects from

Greek legend.

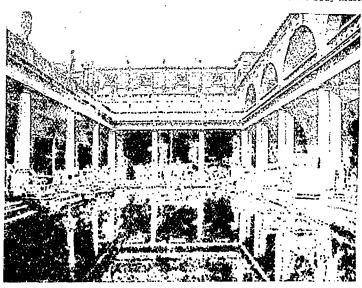
Bates, Henry Walter (1825-92), an Eng. naturalist and explorer, was born at Leicester, Feb. 8. His father was a manufacturing hosier, and his son entered the business, but in 1844 he met Alfred Russel Wallace, and in 1848 they sailed together in a trading vessel to Para. They had practically no money, but hoped to sell their collections when made. B. was eleven years in the country, made his way up the Amazon for 1400 m., and discovered 8000 new species of insects. He was made assistant-secretary of the Royal Geographical Society in 1864. In a paper which he read to the Linnean Society on the insect fauna of the Amazon valley, he stated and solved the problem of mimicry. His best known work is the Naturalist on the Amazons, 1863, which he pub. at the request of Darwin. He amassed a unique collection of coleoptera, which was purchased intact at his death.

Batesar, a pilgrimage tn. in India, 35 m. S.E. of Agra, on r. b. of the Jumna. It has a commercial fair.

Bath, in its original and still most popular sense, i- the plunging of the

body into water, fresh or salt, hot or cold, but the meaning is now extended to the application of some unusual substance to the body or the alteration of the enveloping atmosphere. Cold water bathing, both in sea and in fresh water, is excellent for those of strong constitution, but many whose health is not robust find themselves unable to bear the shock of the low

ruins are to be found. In England to-day the Turkish B. is popular on account of its stimulating influence on the system, but many other forms of bathing are more common. In the Turkish B. the bather passes from one warm air room to another until he perspires from every pore, then undergoes a shampoo, ending with being sprayed with warm water, temp., and for this reason care should steadily decreasing in leat until it be taken that the bather is a fit runs cold. Hot air Bs. may also be subject before he indulges in it. In impregnated with such substances as allaying fevers, easing convulsions, sulphur or eucalyptus; brine Bs. and in various diseases bathing is are common to some places, and coninvaluable. The institution of bath-



THE ROMAN BATH, BATH

many oriental peoples was a religious It was extensively practised among Jews, Buddhists, and Mohammedans, and prevailed among the Gks. at an early period, and was sub-sequently much valued by the Roms. The spread of the custom came through the Roms., who never formed any colony throughout the Old World without building one of their famous These were often magnificent structures and closely resembled in number of chambers and uses the modern Turkish B.; they were used as lounges by the Roms., who resorted to them daily for rest and recreation. At Pompeii there are remains of such places, as there are wherever Roman .

ing is of eastern origin, and among | be held down to prevent it from floating; electric Bs. are water Bs. into which currents of electricity are in-troduced; animal Bs. consisted of wrapping the body in the hide of a newly-killed animal, or of insertion of part of the body in the yet living animal; mineral Bs. are common to spas all over Europe.

Bath, the chief city of Somerset-shire, is situated in the beautiful valley of the Avon, 107 m. W. of Lon-B. is built in a natural amphidon. theatre, and as the character of its ota comesponds with

m, it has an · o other Eng. and especicacy of its

B. are all built of the white freestone also wear a star. known as 'bathstone' (q.v.). The numerous and handsome public buildlings of B. include the Assembly Rooms, the Pump-Room, the city markets, and the Guild Hall. The finest of the numerous churches are the Abbey Church, one of the finest specimens of Perpendicular Gothic architecture, recently restored, and the Rom. Catholic Priory Church, a handsome building with a spire 200 ft. high. B. has a lovely park and numerous open spaces, many educational establishments, a museum, name applied to an instrument which theatre, hotels, etc. The chalybeate is used in deep-sea sounding, especisprings supply six different establishments, and are most useful in gout, ments, and are most useful in gout, rheumatism, cutaneous diseases, etc. No manufs. of importance are carried on in the tn., though coal is found in the vicinity. B. is of great antiquity, being called Aque Sulis by the Roms. Magnificent remains of the Roman baths exist. Richard I. granted the from the training and the fraction in the days of 'Beau Nash,' from 1704-61. The follies and vices of 1704-61. the city have frequently been com-memorated by Fielding, Smollett, Anstey, etc. B. is, with Wells, the seat of a diocese, returns two members to Parliament, and has a pop. of 50,000.

on 50,000.

Bath, a city of the United States, co. seat of Sagadahoe co., Maine, on the western bank of the Kennebec riv., 36 m. N.E. of Portland. It has a good harbour, and ship-building is the prin. industry. Other manufs. are iron, brass, and lumber, and there is a trade in ice, coal, and iron and steel. Pop. 12,500.

Bath. Knights of the a British order.

Bath, Knights of the, a British order of knighthood, whose origin is un-certain, though it is traditionally attributed to Henry IV., who be-stowed the order on forty-six knights Cross (G.C.B.); those of the second class Knights Commanders (K.C.B.); and those of the third class Companions (C.B.). Each of the classes is ribbon of the order is crimson, and Bathos (Gk., depth), a term which the hadge a gold-white cross (mil.), indicates the descent from lofty

medicinal spring, have long made B. gold oval (civ.); the motto is 'Tria the resort of fashion. The houses of juncta in uno.' The two first classes

Bathbrick, the name given to the cakes of siliceous sand used for scouring vessels, cleaning knives, etc. These cakes are made from the sand The of the R. Parret, and manufactured only at Bridgwater, in Somerset.

Bathgate, a market tn. of Linlithgowshire, Scotland. Coal, freestone, and limestone are found in the neighbourhood; there are also paraffin works and a distillery. Pop. 9000.

Bathometer, or Bathymeter (Gk. βαθύς, deep, μέτρον, measure), is the name applied to an instrument which ally for one when the depth is inferred

ally for one when the depth is inferred by the force of gravity.

Bathori, or Battori, the name of an eminent Hungarian family, from the better-known branch of which sev. illustrious personages have sprung. Stephen B., born in 1532, so distin-guished himself in the army that he was unanimously elected to the sover-eignty of Transylvania in 1571, on the death of John Sigismund Zapolya, nephew of the King of Poland. In 1575 he was elected to succeed Henry 1575 he was elected to succeed Henry of Valois on the Polish throne, and was crowned at Cracow in 1576. The internal condition of Poland at this time was very unsatisfactory, dissension being rampant, but Stephen soon effected a great improvement. thereupon declared war against the Czar of Muscovy, and emerged the victor. He d. suddenly at Grodno in 1586. Stephen's nephew, Sigismund B., became prince of Transylvania in 1581, and showed remarkable skill and talents. He freed the land from the Turkish power, but out of mere caprice resigned his dominions to the Emperor Rudolph II., who in return created him a cardinal, and gave him two principalities in Silesia. He quickly changed his mind, and on being invited by the Trans. certain, attributed to Henry IV., was stowed the order on forty-six knights on the day of his coronation. It was allowed to lapse from the time of and disgraced, he was sent to Prague Charles II. until the reign of George I. by the emperor, and died there in 1613. when it was revived, and the number Elisabeth B., niece of Stephen, and limited to the king and thirty-seven wife of Count Nadasdy of Hungary, knight-companions. It was formally is notorious as a type of inhuman instituted in 1815, and in 1847 it was cruelty. The rumours current that extended to civilians. The order now she used cruelly to murder young consists of three classes; the members shown to have some foundation in shown to have some foundation in 1610, when investigations were made, over 600 girls. She was shut up in Csei fortress, and died there in 1614. subdivided into military, civil, or For the connection of this case with honorary members. The Dean of the 'were-wolf' tales, see the Book Westminster is dean of the order. The of Were-Wolfves by S. Baring-Gould. ribbon of the order is crimson, and Bathos (Gk., depth), a term which

thought in speech or writing to the theory has since been completely commonplace or ridiculous, e.g. in Pope's

'Where thou, great Anna, whom three realms obey

Didst sometimes counsel take, and sometimes tea.

Bathsheba, wife of Uriah, and mother of Solomon. King David, and seeing her one day from the roof of his palace, bathing in a court, coveted her. Not daring openly to commit adultery he despatched Uriah, with a letter commanding his destruction, to Joab, who was besieging Rabbath Ammon. His device succeeded. He wedded B., and Nathan rebuked him. She attained the full splendour of queen-mother when Solomon bowed down before her.

Bathstone, the name of a species of oolitic limestone, is found near Bath. It is used to is found near Bath. When just quarcolitic limestone, so called because it building purposes. When just quarried it is soft, but though it becomes hard on exposure to the air, it is not

very durable.

Bathurst, the prin. tn. of the west-ern dist. of New S. Wales, on the S. bank of the Macquarie riv., in 32° 25' S. and 149° 42' E. It has sev. tanneries, breweries, and flour mills, and manufs. soap, candles, boots and

manufs. soap, candles, boots and shoes, furniture, etc. Pop. 10.000. Bathurst, a tn. formed by the British on the is. of St. Mary's, W. Africa, on the mouth of the Gambia R., in 13° 24′ N. lat. Prin. productions are gum, bees' wax, ivory, and gold. Pop. 6500.

Bathurst, Allen, Earl (1684–1775), born at Westminster; entered Trinity College, Oxford, 1699. Entered parliament for Cirencester, 1705; promoted union with Scotland and opposed Marlborough; made a peer, opposed Marlborough; made a peer, 1711; appointed treasurer to George (then Prince of Wales) until death of George II., 1760. Received a pension of £2000 and was advanced to an earldom; he was a friend of Pope, Swift, and Addison. Henry, his son (1714-94), was made chief justice of the Common Pleas, 1754, and lord chancellor, 1771, with the title of Baron Apsley; resigned 1778.

Bathurst Island, one of the Parry Is., off N. Australia, 120 m. W. of Port Portington. It lies between Com-

Essington. It lies between Cornwallis Is. on the E. and Melville Is. on the W. Discovered by Captain Parry in 1819. Length about 30 m. It is partly covered with forests and

partly unproductive.

Bathybius (Gk. \$\text{sabbs}\$, deep, \$\text{sign}\$, Constantine. It is near the splendid life), a name applied to a slimy mass discovered in great depths of the ocean and first described by Huxley in 1868. B. Hackelii was supposed then to be a new organic mass, but it is near the splendid contained. It is near the splendid set for set of the Sile view of the supposed that the splendid set of the Sile view of the supposed then to be a new organic mass, but it is near the splendid set of the supposed in great depths of the sile is near the splendid set of the supposed in great depths of the supposed i Bathybius (Gk. βαθύς, deep, βίρς, life), a name applied to a slimy mass

disproved, and it is believed to have been caused by the addition of alcohol to the sulphate of lime in the sea-Proto-bathybius is the name given by Dr. Bessels in an Arctic expedition of 1876 to a similar substance found in Smith's Sound. The Challenger expedition of 1872-76 finally disproved the theories of Huxley and Haeckel regarding bathybius.

Bathyoles, a celebrated ancient Greek sculptor, of Magnesia on the Mæander in Lydia. Though his time is uncertain, several scholars have attempted to estab. it. B. was the artist who made the throne of the Amyclæan Apollo at Amyclæ, near Sparta. Quatremere de Quincy, in his Jupiter Olympien, has given a view of the god and his throne, designed from the description of

Pausanias.

Bathymetry, see Bathometer. Batignolles, formerly a tn.; now an arron. in the north-west of Paris.

Batiste is a material made of fine linen or cotton lawn; in France the term is applied to cambric. inventor of the material was a certain

Baptiste of Cambrai.

Batley, a tn. in the W. Riding of Yorkshire, on the L. and N.W.R., the G.N.R., and Leeds and Manchester Railways. It is a municipal bor., since 1868, included in the parl. bor. of Dewsbury. The prin. manuf. of B. is woollen goods; it is the head-quarters of the heavy woollen trade, in pilots, druggets, shoddy, etc. Pop. 31,000.

Batman, a weight used in the East which varies according to the locality. In Aleppo and Smyrna it is equivalent to 16 lb. 15 oz. 14 dr. avoirdupois; the greater Turkish B. is about 157 lb., the lesser about 39 lb.

Batman (Fr. bat, pack-saddle), a term used in the British army to indicate the soldier-groom of an officer, originally the man who was in charge of a bat-horse, or baggage

animal.

Batman, John (1800-40), the reputed founder of Victoria, was a settler in Van Diemen's land. He formed a company to colonise Port Philip, and proceeded thither in 1835. He obtained from the aborigines a tract of 600,000 ac., including the present site of Melbourne, but on returning home his title to the land was declared invalid.

Batna, fortified tn. in Algeria, on the Biskra Railway, 65 m. S.S.W. of

granite hills.

Batolites (Fr. baton, a stick, Gk. λίθος, stone), a genus of very long bivalve fossil shells which occur as rocks in the Alps in the Cretaceous system. They are Lamellibranchs, and are closely allied to the Hip-

purites.

Baton (Fr. baton, a stick) is a short staff or club. The name is applied to several articles. The short staff presented to every field-marshal by the king, as the symbol of authority, is known as a B. The long staff which is carried by the drum-major of an infantry regiment is also so called, as is the truncheon of a policeman. The is the truncheon of a policeman. B. of the conductor of an orchestra is at once his instrument and the symbol of his authority. Baton-sinister, baston, batoon, or batune, is a term used in heraldry to indicate illegitimacy. It is a diminutive of the bend sinister, being one-fourth of its width. and does not extend from side to side of the shield. It came into use in England in the 15th century to mark the illegitimate descendants of the royal family.

Batoni, Pompeo Girolamo, one of orn at Lucca

a goldsmith, and Pompeo had thus an early oppor-tunity of displaying his ability for design. He estab. himself very early design. He estab. himself very early in Rome, where he studied Raphael and the antique, and kept himself at first by copying celebrated pictures, but in a few years he obtained the first name in Rome, and lived there until his death, for forty years, without a rival, with the exception of Mengs; hedied in 1787. B. was equally excellent in portrait and history. Several cities of Italy possess altarpices by him, and there are also pieces by him, and there are also many of his works in Germany and other foreign countries. Some of his best works are at Lisbon and at St. Petersburg.

Baton Rouge, a city in the United States, the cap. of Louisiana, on the l. b. of the Mississippi. It is situated

pop. 13,000.

Khan Batou (d. 1254),Tartar emperor, grandson of Ghengis Khan. ruled over Russia and Bulgaria. He laid waste Hungary, and in 1252 acquired Moscow

Batoum, or Batum, a tn. and port in Transcaucasia, Russia, on the eastern shore of the Black Sea. It was ceded

about 95 m., and has many lofty to Russia by the Berlin Congress in 1878, and since that date it has grown in importance, exporting petroleum, lead, cereals, cotton, wool, and fruits. It was a free port until 1886, when its privileges as such were withdrawn. There is railway communication with Baku and Tiflis.

is also a naval station. Pop. 30,000. Batrachia (Gk. βατράχειος, frog-like), a term that is frequently used synonymously with the class Am-phibio, i.e. frogs, toads, newts, sala-manders, etc., and sometimes with the order Anura, which consists of frogs and toads alone.

Batrachomyomachia (Gk. βατράχος, frog, μῦς, mouse, μαχη, battle), a Gk. poem consisting of 294 hexameter verses, which is ascribed to Homer, but attributed by Plutarch and Suidas to Pigres of Halicarnassus. The Battle of Frogs and Mice is a parody on the Iliad.

Batrachus, an architect and sculptor of Laconia, who lived in the time of Augustus. Pliny tells a story of B. and his fellow-countryman Laurus. He says, 'Being very rich, they built at their own cost two temples to Juniter and Juno at Rome, enclosed by the porticoes of Octavia, hoping for an inscription; but this being refused them, they introduced their names in another manner, by carving a lizard (Laurus) and a frog (B.) in the centre of the Ionic volutes of the columns, one in each volute' (Pliny Hist. Nat. xxxvi. 4, 11).

Batshian, see BATCHIAN.

Batta (Canarese bhatta, rice in the husk) is the extra money added to the pay of a British officer in India. It varies according to place and circum-

stances. Battalion is a tactical and administrative unit of command in infantry. The war-strength of a British B. is 1000, or counting all ranks, 1096. This is the largest number of men that can be properly controlled in action by one commander. Eight companies form a British B., each with a captain and two lieutenants: for tactical purposes four companies on a high bluff, and has a college, an form a half B., commanded by a arsenal, and a penitentiary. On Aug. major. A B. is under the command 5, 1862, the Confederate forces under Gen. Breckenridge suffered a heavy defeat here. Pop. 11,000.

Batony, a tn. in Hungary, in prov. a quartermaster, invariably promoted of Csanad, 25 m. E.N.E. of Mako; from the ranks, and ranking as lieutern to the control of the cont tenant or captain; a surgeon, and a paymaster. The band-master and sergeant-major are warrant officers, not holding commissions. Three smallarm ammunition carts, a water-cart, and eight general service waggons for baggage, with forty-five horses, are taken into the field by a B. The number of men in a Prussian B. at

Battas, Battaks, or Battahs, form a race of people which inhabit the central highlands of Sumatra, from the volcano Ophir northwards as far as Their national centre is Lake Achi. Toba. The B. are akin to the Malay race; some are independent and heathen, whilst some are under Dutch dominion and Mohammedans. The B. till the soil, and grow principally rice and maize; they also keep cattle, horses, goats, and pigs. Their prin. occupation consists in the manuf. of ironwork, earthenware, and cloth. The houses are built of wood, covered The houses are built of wood, covered in with the ribs of palm-leaves. The villages are fortified after a fashion, being surrounded by earthern walls and bamboo palisades. The people are distinguised by their innate and persistent conservatism, being very unwilling to give up old customs. They are of middle height and light brown in colour, with long black hair. Dirty in their dress and dwelling, they are no more fastidious in their diet, being willing to eat anything, though rice is willing to eat anything, though rice is staple food; cannibalism is their sometimes practised, though to a much less extent than formerly. Peaceful as a rule, the B. have no lack They have of courage on occasion. also a written language and literature. Batten, the commercial name given

to various kinds of sawn timber smaller than a plank, being usually 12 or 14 ft. long, 7 in. broad, and 2½ in. thick. The term is also used in connection with narrow wooden strips used in ship-building.

Battenburg was originally the name of a German aristocratic family, which became extinct about 1314. The seat of the family was near B., a small place in the Prussian prov. of Hesse-Nassau. In 1851, Alexander, the younger son of Louis II. of Hesse, married morganatically the Polish Countess Julia Theresa von Haucke, who was then created Countess of B. In 1858 she was given the rank of princess, and her children were permitted to call themselves Princes and Princesses of B. The eldest son of the marriage, Louis Alexander, was born in 1854. He married Victoria, daughter of Louis IV. in 1884, and subsequently became a British admiral. The second son, Alexander Joseph, was Prince of Bulgaria from 1879 to 1886, and died in 1893. The third son, Henry Maurice, was born in 1858, and married Beatrice.

war-strength is 1000 men, divided into four companies; the Austrian and Fr. B. are divided into six companies. A British B. is not normally at war-strength, but is brought up thereto by calling out reserve men.

Battas, Battaks, or Battahs, form a Battas, Battaks, or Battahs, form a Battas, Battaks, or Battahs, form a Battas, and married Gustavus Ernest, and mar Prince of Erbach-Schonberg, in 1871. The fourth son, Francis Joseph, was bornin 1861, and married the daughter of Nicolas I. of Montenegro in 1897.

Batter, in architecture, is used of the wall of a building which recedes as it rises, so that the B.-rule, or plumb-line, falls within the base. The

walls of wharves usually batter. Battering-ram was an engine employed in ancient times to cause a breach in the walls of a besieged place. Two kinds of Bs. were used, one kind being suspended in a frame, the other movable on wheels or rollers. The ram consisted of a large beam, or spar, with a massive metal head; it was usually set in motion by means of cords passing over pulleys. A roof or screen to protect those employing it generally covered it. Bs. were often made of very great weight

and size. Battersea is a south-western suburb of London, on the Surrey side of the Thames, spanned near here by the Chelsea, Albert, and B. bridges. B. Park, which was commenced in 1852. has an area of 185 ac., and the Albert Palace opened in 1885 is also in B. Of late years the suburb has been markedly democratic in its views. Many factories, foundries, and engineering works are in the suburb, and the Shaftesbury Park Estate provides houses for many of the working classes. Lord Bolingbroke was born in B., and here the Duke of Wellington fought a duel with Lord Winchelsea in 1829. A metropolitan municipal borough of members to parliament, and has a pop. of 270,000.

Battersea, Cyril Flower, First Baron (1843-1907), an Eng. politician, born at Streatham and educated at Harrow streatham and educated at Harrow and Trinity College, Cambridge. He entered parliament in 1880, representing first Brecknock, 1880-5, and afterwards S. Bedfordshire, 1885-92. He was Junior Lord of the Treasury, under Gladstone, in 1892, and was created a peer in the same year. Battery, see Army and Artillery. Battery, Assault and, see Assault And Battery.

AND BATTERY. Battery, Electrical, sec Electrical

BATTERY. Batthyanyi is the name of one of the most ancient and distinguished of the Hungarian aristocratic families. Its youngest daughter of Queen Victoria, family-tree goes back to A.D. 884, and it has numbered among its members turning from service with the British some of the most illustrious men of

In 1526 Francis B. dis-Hungary. tinguished himself in the battle of Mohacz, and Balthazar B. in the Turkish wars of the same century. Count Casimir B., born in 1807, was minister of foreign affairs in Hungary during the insurrection of 1849. After the disaster of Vilayos he fled with Kossuth into Turkish ter., and afterwards he went to Paris, where he died in 1854. Count Louis B. was born at Presburg in 1806, and entered the army as a cadet, but subsequently adopted a diplomatic career. He was appointed president of the ministry when Hungary at length obtained one in 1848, but did not hold the office long. Despite his moderation as a member of the diet, he was arrested in Jan. 1849, when the Austrians entered Pesth. He was condemned to be hanged on Oct. 6, 1849, but by wounding his neck with a dagger he prevented this form of execution being carried out. He was, however, shot.

Battiadæ, a Cyrene dynasty of eight kings. They were: Battus I. (c.630 B.C.), Arcesilaus I., Battus II., Arcesilaus III., Battus IV., and Arcesilaus IV. (d. about 450 B.C.). The last-named is the subject of two of Pindar's odes. The history of the dynasty may be found chiefly in Herodotus.

Batticalea a fan of Ceylon, cap. of

Batticaloa, a tn. of Ceylon, cap. of dist. of same name, situated on a small is. off the E. coast. It has an excellent harbour and a good trade, particularly in cocoanut products. Area of dist. 13,060 sq. m.; pop. of dist. 36,000, of tn. 7300.

Battle, a mrkt. tn. and parish in the co. of Sussex, situated 6 m. N.W. of Hastings. It was anciently called Epiton, but after the battle of Hastings in 1066, which was fought near here, its name was changed to B. It contains the ruins of B. Abber, built by William I. on the spot where King Harold was killed. Pop. about

3500. Battle, a fight between two or more armies or navies, whether large or small. At Sadowa 400,000 men were engaged, at Naseby only 21,000, but termed general when both armies are; partial. When only small sections are sanatorium. Pop. nearly 30,000. engaged it is called a skirmish. A Battledore and Shuttlecock, a game commander may choose to act on the played 2000 years ago in China, and offensive or defensive, or to combine still popular. It consists of tossing both, according to circumstances; the shuttlecock, a cork base surjudgment in decision, skill in preparrounded by feathers with parching the plan of B., and promptness in varying it as required, are the marks of a great leader.

Battleford, at n at the confluence of a great leader. of a great leader.

Striking illustrations of the influ-

more than merely national fate will be found in Sir Edward Creasy's Fifteen Decisive Battles, and a clear analysis of the principles of modern warfare in Sir Edward Hamley's Operations of War. Of Bs. which have produced the greatest results in history the following may be specially noted: Marathon (490 B.C.), Chalons (A.D. 451), Tours (732), Hastings (1066), Spanish Armada (1588),Trafalgar (1805), Waterloo (1815). Sedan (1870), Tsu-shima (1905), and Lule Burgas (1912). The most sanguinary Bs. of recent times were: Borodino (1812), when out of 250,000 men engaged 80,000 were killed and wounded: and Mukden (1905), in which each army had over 300,000 soldiers engaged and the fighting lasted over a fortnight, the Japanese losing nearly 50,000, and the Russians over 90,000. At the B. of Lule Burgas (1912) the Turks lost over 40,000 and the Bulgarians 15,000.

Battle. Wager of, see TRIAL BY

COMBAT.

Battle Abbey, The Roll of, a list of the barons who fought on the side of William I. at the battle of Hastings. It is supposed that at the end of the battle a list was made of his chiefs, who numbered 629, and among whom who humbered variant among which the titles and property of the defeated were distributed. The Duchess of Cleveland edited The Roll of Battle Abbey, with notes, etc., in 3 vols., 1889. Consult also Walcott, History of Battle Abbey, 1867.

Battle-axe is a weapon which has been in use from primitive times. The head was originally made of stone, then of bronze, and finally of iron or steel; some varieties could be held with one hand, while others required

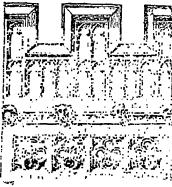
two. The pole-axe, or halberd, is merely a B. with a long handle.

Battle Creek, a city in Calhoun co., in the S.W. of Michigan, U.S.A., is on the Kalamazoo R., 48 m. from Grand Rapids. It was settled in 1831, and have received in the following in the statement of the control and became a city in 1859. Lying in the centre of a rich fruit and grain producing district, it is chiefly famous for the manuf. of health foods, in which it takes the lead in the States: each was a decisive contest. A B. is but it has also large works for making agric. implements, railway cars and brought fully into action; if only a locomotives, and pumping engines, considerable portion of each it is besides a fine medical college and

Battleford, a tn at the confluence of the Battle and N. Saskatchewan Rs., Canada. From 1876 to 1883 it was ence which a great B. may have on the seat of government for the N.W.

Territories, but was then superseded: by Regina. Fighting took place here during Riel's insurrection in 1885. A branch railway connects B. with the Canadian Pacific.

Battlement (Fr. bâtiment, building), a wall erected round the top of a fortified building consisting of rising parts known as cops or merlons, and intervening spaces called crenelles.



BATTLEMENT

The soldiers fired from the embrasure while taking refuge behind the mer-In architecture Bs. are still

erected for artistic effect.

Battue (from Fr. battre, to beat), a method of killing game, such as hares, pheasants, etc., by having them driven out of cover by beaters towards the spots where sportsmen are stationed to fire. In war or civil strife the term has often been applied to the slaughter of helpless crowds.

Batum, see Batoum.
Baturin, a tn. of Tchernigov gov..
Russia, on R. Seim, 63 m. E. of
Tchernigov. From 1669-1708 it was
the headquarters of the Hetman of
the Ukraine Cossacks. Pop. 3600.

Batz, a tn., dept. Loire-Inférieure, France, situated on the coast, 50 m. N.W. of Nantes. It has salt-pans and interesting antiquities, and the inhabitants are noted for their quaint customs and picturesque costumes. Pop. 2500.

Baucis, see PHILEMON.

Baud, atn., dept. Morhiban, France,

13 miles S. of Pontivy; pop. 4690.

Baudelaire, Charles Pierre (1821-67), Fr. poet and littérateur, was born in Paris, and educated there and at Lyons. At the age of twenty he was leading such a riotous life that his guardians sent him away to India, but he soon returned and became guardians sent him away to India, the Prix de Rome in 1850, and his but he soon returned and became residence in Italy strongly influenced prominent among the Bohemians and his afterwork. His favourite subjects

revolutionaries of Paris. As an author he belonged to the most exaggerated and unwholesome section of the romanticists. Though his work has high artistic merit, yet his subjects and treatment reveal a taste for disagreeable, even loathsome, matter, and a rebellion against the accepted canons of morality and society. His earliest poems, Les Fleurs de Mal, both in title and matter, forctokened his literary career. His is the art of presenting passion and vice in daring and brilliant colours, and clothing horrible and abominable ideas in exquisite language. But not all his work was like this; he was an excellent critic, and his translations from the writings of Edgar Allan Poe are per-fect. The latter part of his life was miserable. Financial troubles, opium, and drink ruined his health, and his last two years were spent in private hospitals. His chief works are: Les Fleurs de Mal, Poèmes en Prose, translations from Poe, and some vols. of critical essays.

Baudin, Charles (1784-1854), Fr. admiral, fought in the Napoleonic wars. In 1838 he distinguished himself by the capture of St. Jean d'Ulloa, and was appointed minister of the marine in 1841.

Baudissin, Wolf Heinrich von (1789-1878), Ger. writer, was for some time secretary to the embassy at Vienna, and later at Paris. Afterwards, however, he gave all his time to the study of literature. He did into modern Ger. much of the primitive writings of his people, but his countrymen are especially indebted to him for his translations of the plays of Shake-speare and other Elizabethan drama-tists, of Molière, and Goldoni, besides an excellent and original work on Ben Jonson and his School.

Baudrillart, Henri Joseph (1821-94), Fr. economist, son of J. J. B. contributions to the Journal of Economists, etc., prove him to be a gifted man of letters. As a member of the Academy of Moral and Political Science he was entrusted with an inquiry, the results of which were pub. in his Agricultural Population of France. He was professor of political economy at the Ecole des Ponts et Chaussées.

Baudrillart, Jacques Joseph (1774-1832), French authority on forestry, was the son of a market gardener. In 1819 he occupied a position of importance in the administration of forests, and later published many books dealing with forestry.

Baudry, Paul Jacques Aimé (1828-86), Fr. painter, b. in Vendée. He won

Marat'), and many excellent por-traits. His greatest fame was gained by his mural decorations in the Paris Opera House, the Château de Chantilly, the Cour de Cassation, and various private houses. His works are marked by graceful design and rich colouring rather than by strength or originality.

Bauer, Bruno (1809-82), theologian and historian, was born at Eisenburg, Germany, and educated at Berlin, where he became a licentiate of theology in 1834. In 1839 he was transferred to Bonn, but within the next two years published works on the Gospels expressing such unorthodox views that his licence to teach was withdrawn, and he retired to Rixdorf to spend the rest of his life in study and authorship. His theories on the origins of the Gospels are, briefly, that 'St. Mark' was written in the time of Hadrian, and that from this the others were constructed a century later by Gentile, converts, who then passed them off as genuine apos-tolical documents. He also disputes the authenticity of the four chief Pauline epistles. His assertions. though not well received, had the good effect of causing fuller inquiry into the history and character of early Christian records. B. also wrote histories of the 18th century, and of the French Revolution.

Bauer, Caroline (1807-78), a Ger. actress, was born at Heidelberg. She made her début in 1822, and became a popular favourite both in comedy and tragedy. In 1829 she was married morganatically to Prince Leopold of Coburg, then widower of the Princess Charlotte and afterwards King of the Belgians. Their union was unhappy, and came to an end in 1830. Returning to the stage for some years, she finally left it in 1844 to marry a Polish count. She wrote two lively vols. of theatrical reminiscences and memoirs, published posthumously, in twist in which she strongly denounced Prince manner. Leopold and Baron Stockmar.

Bauernfeld, Eduard von (1802–90), Austrian dramatist, was b. at Vienna. Baukaw, or Bai In his numerous plays the dialogue in circle of Boalways flows, and the interest is well Pop. about 8000. maintained. Though he is not interested in profound psychology, his irrepressible humour, and his lively sense of the ridiculous both in circumstances and people, make him the Molière of the Viennese stage. Leicht-sinn aus Liebe, Bürgerlich und Romanlisch, Das Liches Protokoll, and Moderne Jugend, are the best known of his comedies.

were mythological or decorative, but France, on R. Couasnon, 23 m. N.E. he painted one historical picture of Angers The cap. of an arron. (*Charlotte Corday after the death of The Fr. defeated the British under Marat '), and many excellent portube Duke of Clarence here in 1421. Pop. 3325.

Bauhin, Gaspard (1560 - 1624), brother of Jean B., was born at Basel. After receiving the usual college education, he visited sev. parts of Europe. On his return to Basel, he appears to have gained great reputation as a learned man and a skilful naturalist. We find him described as holding the offices of professor of Gk., of anatomy and botany, and of the practice of medicine, dean of the faculty of medicine, chief physician to the town, and rector of the university. His chief works were: Phytopinax, Basel, 4to, 1596, and Prodromus Theatri Botanici. Frankfurt, 1620. He also made collections of the synonyms of the botanical writers who had preceded him. The latter appeared in his Pinax Theatri Botanici in 1623, of which a second edition was published in 1671, forming a complete key to botanical knowledge of the day.

Bauhin, Jean (1541 – 1613), was, according to Sprengel, born at Basel. His father placed him with Fuchsius. a botanist of eminence, and afterwards with Conrad Gesner, whom he accompanied in various excursions through Switzerland. He afterwards visited several other parts of Europe for the purpose of becoming acquainted with their vegetable productions, and with a view to collecting materials for his Historia Plantarium, afterwards pub. In 1566 he fixed himself at Basel, where he was elected professor of rhetoric. A few years subsequently he was appointed principal physician to the Duke of Würtemberg, in which situation he died at Montbéliard.

Bauhinia, a large genus of tropical Leguminosæ named by Linnæus after the two botanists. Bauhin. flowers are often very beautiful, the leaves are generally divided into twin lobes, but the genus is chiefly remarkable for its twining plants which twist in and out in an intricate manner. *B. porruta*, the Jamaica 'mountain ebony,' is so called because its wood is sheathed in black. Jamaica

Baukaw, or Baukau, a tn. of Prussia. in circle of Bochum. Coal mines.

Baul, a tn. of Venezuela, in state of Zamora, 60 m. S. of San Carlos: pop. 10,000.

Baumann, Oskar (1864-99), Austrian traveller, born in Vienna; in 1885 journeyed with Leng up the Congo liver to Stanley Falls; the following year he explored Fernando Po, and two years later ascended the mt. of Kilimanjaro. During 1892-93 he led Bauge, a tn., dept. Maine-et-Loire, an expedition to Victoria Nyanza

and explored the surrounding dist.; porcelain factories, 1833-46; in charge in 1896 he was made consul at Zanzibar. He published sev. works on his explorations, of which three are Eine afrikanische Tropen-Insel, Fernand 1855 he was president of the Austrian Poo, 1888; Usambara und seine Nachbargebiete, 1891; and Afrikanische the Reichsrath, House of Schoenes, and in 1861 hargebiete, 1891; and Afrikanische the Reichsrath, House of the Reichsrath Re 1891; and Afrikanische Skizzen, 1900. Dr. Oskar Baumann, 1900.

Baumannshöhle, stalactitic cavern in Harz Mts., Duchy of Brunswick, on Bode R., 5 m. S.E. of Blankenburg.

It contains numerous fossil remains.

Baumbach, Rudolf (1840 – 1905),

Ger. poet and novelist, was born at Kranichfeld. Among his best works are the epic, Zlatorog, 1875; the novel Trug-Gold, 1878; book of lyrics, Lieder eines fahrenden Gesellen, 1878; and fairy-story, Es war einmal, 1889.

Baume-les-Dames, tn., dept. Doubs, France, on R. Doubs, 18 m. N.E. Besançon; cap. of an arron.; pop.

3000.

Baume-les-Messieurs, a vil. in Jura dept., France, 6 m. N.W. of Lons-le-

Saulnier.

Baumgarten, Alexander Gottlieb (1714-62), was b. at Berlin. He studied at Halle, and became a warm admirer of Wolff's philosophy. B. applied himself to logic and to belles-lettres, on which he alterwards gave lectures at the circulation of blood. He wrote the Orphan Institution of Halle. He voluminously on medical subjects; invented the word methods which invented the word æsthetics, which

applied to the theory of taste, or science of the beautiful. He divide the science of esthetics into the of

works of B. ar

Philosophica,In 1740 B. was appointed professor of philosophy at Frankfurton-the-Oder, where he died.

Baumgarten-Concine Individ Fried-

rich Otto (1788was born at Mer

Leipzig University. From 1812 until his death he was professor of theology He was a recognised auat Jena. thority on the history of Christian dogma, and his books on the subject are numerous, among the chief of them being Grundzüge der Biblischen Theologie, 1828, and Compendium der Dogmengeschichte, published four years after his death.

Baumgärtner, Andreas, Baron von (1793-1865), an Austrian scientist and politician, was born at Friedberg, Bohemia, and studied at the University of Vienna, where he became professor of physics. He was afterwards

Lords. He pub. Dic mechanische Theorie der Warme, 1864; Naturlchre, Lords. 1823 (new edition 1845), and many other works.

Baumgärtner, Gallus Jakob (1797-1869), a Swiss statesman, born at Altstätten. He studied at Freiburg and Vienna, and promoted the revision of the constitution of the cantons, 1831, He was a leader of the Liberals till 1841, when he joined the Ultramontane party. He represented his canton in the Council of Estates from 1857 to His writings are on historical subjects and include: Die Schweiz in thren Kämpfen und Umgestallungen von 1830-50, 4 vols., 1853-66. In 1842 he founded the New Schweizer Zeitung.

Baumgärtner, Karl Heinrich (1798-1886), a Ger. physician, born at Pforzheim, and died at Baden-Baden; he became clinical professor at Freiburg, 1824-62. His fame rested on his original studies in embryology and

Nähere Begründung Embryoanlage durch 1854; Schöpfungs.

science of the beautiful. He divic.

the science of esthetics into theoretical and practical; he developed his ideas first in his treatise, Disputional distinct science of the distinct science of Barr.

1854; Schöpfungster gedanken, 1856-9.

Baur. Ferdinand Christian (1792-1860), Ger. theologian, b. near Stuttgart. In 1825, while professor in the clogical seminary at Blaubeuren, he published his first important book, Symbolik and Mytholegic oder die Naturreligion des Altertums. Next year he was appointed professor of theology at Tübingen, where for some theology at Tübingen, where for some time he wrote r and allied subjec

Religionssystem Apollonius von meanwhile he w influence of Heg

of history he adopted in his subse-Between 1835 and quent works. 1847 he estab. what is known as the Tübingen School, the teachings of which were so opposed to orthodox tradition that they aroused great antagonism. B. contends that the antagonism. B. contends that the various N.T. books were mostly the outcome of a Petrine versus Pauline contest in the early Church, that the only genuine epistles of St. Paul are those to the Galatians, Corinthians, and Romans, and that these prove him to have been in strong opposition to Peter, while the writer of Acts tried as far as possible to minimise their disagreement. B. also argues in appointed director of the imperial his book on the Gospels (1847), that

centuries, were adaptations from an earlier gospel, and show a desire on the part of the redactors to reconcile the opposing factions. His main argument is that Peter and his friends tried to establish a Jewish Christianity, while Paul worked on bolder and broader lines, and that their differences influenced all Christian literature for two centuries. Towards the end of his life, B. somewhat modified his views, and hi (1835-63) is less strictly historical . works.

Bautain, Louis Eugene Marie (1796-1867), was born at Paris and educated at the Ecole Normale. Displaying a talent for philosophy, he became professor of that science at Strassburg, where he was afterwards appointed professor also of literature. In 1828 horiessor also of increature. In 1825 he resigned his professorship to take orders, but remained in Strassburg until 1849, when he was translated to Paris as vicar of the diocese, and remained there until his death. His philosophy and theology were rather medieval than modern; he was a mystic, and strongly opposed to rationalism.

Bautzen, or Budissin, a tn. of Upper Lusatia, Saxony, Germany, on Spree, 31 m. N.E. of Dresden. cap, of an administrative dist. It is surrounded by picturesque turreted walls, and contains a cathedral. Has manufs. of textiles, leather, paper, and metal. Napoleon defeated the Allies here in May 1813. Pop. 29,000.

Bauxite, an earthy compound of aluminium, iron oxide, titanic acid, and water, in varying proportions; found in the S. of France (taking its name from Baux, near Arles), in Ireland (Antrim), and in the Southern United States United States. Its colour varies according to the proportion of oxide. B. is valuable for the production of aluminium and its salts. As it resists heat well it makes also good crucibles and fire-bricks.

Bavaria (Ger. Bayern), one of the kingdoms of Southern Germany and in area and pop. the state which next to Prussia is of most importance in the Ger. empire. It is divided into two unequal parts, the one B. proper, which occupies at least eleven-twelfths of the whole area, and the other the Palatinate of the Rhine, which is divided from B. proper by the duchies of Baden and Hesse. B. proper is surrounded by great ranges of mts. on three sides, the western side being bounded by Würtemburg, Baden, and Hesse. The country consists mainly of an extensive plateau, which

these, written in the first and second | basins of the Danube and the Main, the most important river being the former. The Danube follows a winding course of about 200 m. long throughout B. It is navigable, and receives during its course through B. numerous tributaries, amongst which may be named the Iller, the Lech, the Isar, and the Inn, the Naab and the Wörnitz. The Palatinate is bounded on the N. and W. by a lofty range of hills, on the E. by the Rhine, and on the S. by Alsace. The climate of B. varies very considerably with the physical character of the country. Taken on an average, it is rather colder in winter than in Great Britain, but a good deal warmer during the summer and the autumn. of the two divisions taken together is 29,285 sq. m. It is divided into eight provs.: Upper B., Lower B., Upper Palatinate, Upper Franconia, Middle Franconia, Lower Franconia, Swabia, and the Palatinate. The pop. of B., according to the census of 1905, was over 6,500,000. Two of the tns. have pops. of over 100,000, while another four have pops. between 50,000 and 100,000. Education, which up till quite recently was rather backward, has improved very considerably of late years. There are now at least two Roman Catholic universities. By far the greater part of the pop.—almost three-fourths—are Roman Catholics. By a concordat with Rome the kingdom is divided up into two archbishoprics and six bishoprics. The Protestant Church, however, is supported by the state, and the Protestants form nearly one-fourth of the population, the remainder consisting principally of Jews.

Agriculture.—The main products of the country are rye, oats, wheat, barley, and millet, hemp, flax, fruit, and the vine. Tobacco is also produced in some quantities, and the Palatinate produces large quantities of the sugar beet. In Central Franconia extensive quantities of hops are produced. In the provinces of Swabia and Upper Bavaria, cattle-rearing forms the chief occupation of the people, the country here being more suited to pasture land than for the production of good crops. Almost one-third of the whole area of Bavaria is given up to forest lands. The land is held principally by peasant proprietors, the average holding consisting of about 150 ac.

Mineral wealth.—The chief minerals of B. are coal, iron-ore, graphite, and salt. Up to the middle of the 19th century the sale of the latter was a gov. monopoly, but this monopoly has been abolished during the last has an average height of nearly 2500 sixty years. Coal is found in almost ft. It belongs principally to the all parts of B. In addition may be mentioned quarries of marble, gypton, and good building stone. In the control of the Frankish kings and Palatinate there are also sev. quicksilver mines which still produce a was definitely incorporated in the control of the frankish kings and emperors. By Charles the Great, B. was definitely incorporated in the control of the frankish kings and control of silver mines which still produce a good output. Porcelain clay is also found, and ranks amongst the finest in Europe.

Manufactures.—The chief industry of B. is brewing. This industry is carried on on a far more extensive scale here than in any other European country. There are considerably more than 5000 breweries in the country, and the output of beer is more than 100,000,000 gallons per annum, the greater part of the output being consumed within the country itself. In addition, there is a fair porcelain industry, and a good industry in cotton and woollen goods. Hardware, wooden toys, glass, cement, and spirits are also manufactured in the country. The chief exports are corn, hops, beer, wine, and potatoes. Nuremburg is the centre of the hop trade, and Augsburg the chief of the cotton tns. Sugar, tobacco, cocoa, and coffee are imported into the country. The communications of the country are in a good state; there are excellent state railways, a good system of roads, and a fair canal system. Telegraphic and telephonic communications are also good.

Constitution.—By the Treaty of Versailles of 1871, B. became one of

the confederated states in the Ger. empire, which, however, reserved to B. many separate privileges. By the constitution of 1818, which has been only slightly altered, B. is a constitutional monarchy. The crown de-By the scends to the nearest male heir, and is hereditary in the house of Wittelsbach. In case of infancy or incapa-city the regency is vested in the nearest male heir to the throne. The king is the head of the executive, but his ministers are responsible for his The seat of the gov. is at acts. Munich. Bavaria also sends forty-eight deputies to the imperial diet. The army forms a separate portion of the Ger. army, but in time of war is commanded by the Ger. Emperor. Its peace footing is about 60,000 men, in war time this number can be raised

to nearly 200,000. History.—The original inhab. of B. were probably of Celtic origin, and had probably been in occupation of their ter. for some centuries before. Just previous to the beginning of the Christian era they were conquered by the Romans and included in a Rom. After the decline of the Rom. power they suffered somewhat from the inroads of the barbarians, and

Carolingian empire. During the centuries which followed, B. was the scene and the cause of many quarrels, being held now by one prince, now by another, until towards the end of the 11th century it passed into the hands of the family of Welf. The first Welf The first Welf with difficulty retained it, and passed it on to his sons, but his grandson. holding both B. and Saxony, was deprived of B., which for a short time passed back into the hands of the imperial family, only, however, until 1156, when it was restored to Henry the Lion, the great-grandson of the first Welf. But Henry the Lion did not hold the duchy for very long; in 1180 he was placed under the imperial han, and deprived of his lands, which were given to a duke of the Wittelsbach family. Under the early Wittelsbachs B. increased in prosperity but its means of territorial are perity, but its means of territorial expansion were rapidly declining, since on all sides were growing up strong and extensive powers. During the 13th and 14th centuries the possibility of B. becoming one of the great Ger. powers was stopped by the div. of the duchy into two, and again after a short union into six. For some considerable time the history of B. is simply the record of the innumerable quarrels and wars which were the natural outcome of these divs., and B., as a Ger. duchy, ceased to be of any great importance. Until the beginning of the 16th century B. remained disunited, until in 1504 it again regained its unity under Albert again regained as units units. The the Wise. After his death, again a partial div. took place between his sons, William IV. and Louis; after Louis' death, 1545, William IV. again ruled over a united B. The next ruled over a united B. important point to be noticed in the history of B. is its attitude to-wards the Reformers. William IV. keenly supported the Catholic Church. and was able to a very great extent to repress the progress of the Reformers. His son followed his policy, and was succeeded by William the Pious, who had been trained by the Jesuits. His son, Maximilian I., placed B. on a very strong basis indeed, reformed it internally, took an active part in the Thirty Years' War, and regained for his country the addition of the Upper Palatinate. He died in 1681, leaving B strong, able, and desirous of taking her proper place in the councils of Europe, a thing which internal strife had forbidden during the past four were ultimately quite easily conquered centuries. In addition to keeping the Franks. Their dukes, during the later part of the dark ages, seem in addition, received confirmation of

its title to the electoral dignity to which it had been raised in 1624. The next reign was taken up in a judicious attempt to allow the duchy to recover from its exhaustion brought on by the Thirty Years' War. Maximilian's son this work was well carried out, but Maximilian Emmanuel undid all this work by taking an active part on the side of France during the Spanish Succession War and sharing in the defeat at Blenheim in 1704. His dominions, lost for the time, were only restored in 1714 in a very ravaged and exhausted condition. On the death of the Emperor Charles VI., untaught by the experi-ence of 1702-14, Charles Albert de-voted all his strength and power to an attempt to win from Maria Theresa the crown of Austria. Semi-successful at first, he d. in the midst of failure (1745), and his successor got back the ancestral possessions only by giving of the

tempt to recover. And in 1777, on the extinction of the Bavarian line of the Wittelsbachs the succession passed to the Elector Palatine (Charles Theodore), and the Palatinate and the duchies of Julich and Berg were This directly led to the united to B. war of the Bavarian succession. revolutionary wars found B. a prey to the alternate attacks of France and Austria. In 1805, however, B. was made into a kingdom by Napoleon, the title being vested in the ducal elector. B. now remained a firm ally of Napoleon until 1813, when, by a judicious change of sides, it was able to have confirmed to it by the victorious allies all the benefits and advantages given it previously by Napoleon. In 1818 it received another constitution, one which it holds to the present day with practically no change. B. felt the shock of the Revolution of 1830, but no outbreak took place until the further shock of The king was then forced to abdicate, and was succeeded by his son. During the Austrian-Prussian son. During the Austrian-rrussian War, B. helped Austria, and had to pay a huge indemnity at the end of the war to Prussia, and concede some small amount of ter. In 1870, however, it placed its army under the command of the Prussians, and by the treaty of Versailles of 1871 became an integral part of the German compire with certain special priviempire with certain special privi-leges. King Louis II., the patron of Wagner, went mad, and committed suicide in 1886, being succeeded by his brother, King Otto, who also un-fortunately became insane; the regent appointed was Prince Leopold, his uncle.

Bavaria. Statue of, a colossal bronze statue, personifying Bavaria, executed by Ludwig von Schwanthaler, 1802-48, which stands nearly 63 ft. high in front of the Ruhmeshalle at Munich.

Bavarian Alps, see Tyrol.
Bavay, a tn., dept. Nord, France,
13 m. S.E. of Valencienues. The
ancient Bagacum, cap. of the Nervii. It has iron-works and marble quarries. Pop. 1750.

Bawean, Bawian, or Bavian Island, an is. off the Malay Peninsula, situated between Borneo and Java. The dist. is hilly with fertile valleys and hot springs; it is very densely populated and is a Dutch possession. Pop. about 35,000.

Bawtry, a tn. of W. Riding, Yorkshire, England, 8 m. S.E. of Doncaster, on the Great Northern Rail-

short

way; pop. 1000.

Bax, Ernest Belfort, an Eng. journalist, b. 1854 at Learnington. He studied philosophy in Germany where he acted as a foreign corre-spondent during 1880 and 1881. In 1885 he was the co-founder with William Morris of the Socialist League, and for a time assisted in the editing of the Commonweal. He later joined the Social Democratic Federation, and became the editor of its organ, Justice. He is the author of numerous works on historical and socialistic subjects, which include Jean Paul Marat, 1878; new ed. 1901: Ethics of Socialism, 1889; French Revolution, 1890; German Society at the Close of the Middle Ages, 1894; in conjunction with William Morris, Socialism, its Growth and Outcome, 1894; The Browth and Outcome, 1894; The Peasants' War in Germany, 1899; Essays in Socialism, 1996; The Last Episode of the French Revolution, 1911.

Baxar, or Buxar, a tn. situated on the S. bank of the Ganges in the Shahabad dist., Bengal, India. Mir Kasim was defeated by Sir Hector Munro, 1764. It is of literary interest as the residence of writers of Vedic hymns. The trade is chiefly in sugar, cotton, and cotton goods. Pop. 14,000.

Baxter, Sir David (1793-1872). He was manager of the Sugar Refining Company, in Dundee, till 1826, when he joined the linen manufacturing firm of Baxter Brothers as a partner. He was extremely successful in business, and was a most generous benefactor to his native town. He was created a baronet in 1863. Consult Norrie, Celebrities of the Dundee

Ninetecnth Century, 1873.

Baxter, Richard (1615-91), divine and controversialist, b. at Rowton in Shropshire, and studied under Richard Wickstead, who had an excellent

versity was not realised. versity was not realised. The mis-fortune at court, where he was well received, but he found the life un-suitable. Ordained at the age of twenty-one by the Bishop of Worces-ter; appointed to the Grammar School at Dudley; became assistant to a elergyman at Bridgenorth; went as preacher to Kidderminster. While siding with the Parliamentarians in the Civil War (he accepted a chaplaincy to the Parliamentary army), he opposed the execution of the king and the vesting of supreme power in Cromwell. He held a middle course between the Episcopalians and Presbyterians. On the restoration of the monarchy he was appointed one of the king's chaplains. He presented to the Conference at the Savoy a reformed liturgy, but neither the Presbyterians nor the bishops would accept it. The Act of Uniformity of 1662 was so strict in its requisitions as regards ceremonial worship that it had the effect of banishing B., with some two thousand divines, from the pale of the church. He retired to Acton, but after the Indulgence of 1672 he returned to London, but was regarded with suspicion. He was regarded with suspicion. He was arrested as being hostile to Episcopacy, severely fined by Judge Jefferies, and spent eighteen months in prison. During the later years of his life he wrote very much, the number of his writings reaching a total of 168 works. He was an eloquent preacher and a keen and able controversialist. Among his best known works are: The Saints Everlasting Rest, 1650; a Call to the Unconverted, 1657; Methodus Theo-logiæ, 1681; Catholic Theology, 1675. He left an autobiography, Reliquia Baxteriana—a favourite work with Johnson and Coleridge. Orme prefixed a Life to his edition of B.'s works in 23 vols. 1830; Lives by A. D. Grosart (1879), Dean Boyle (1883), and J. H. Davies (1886).

(1650 - 1723),Baxter, William an,

ub. um He

Baxterians, a name formerly applied to the followers of Richard Baxter, the Nonconformist divine, in his theological teaching. His two most noted adherents were Dr. Philip Doddridge and Dr. Isaac Watts.

Bay is a name applied to several species of the genus Laurus, or laurels,

library, though a careless scholar him-self. B.'s ambition to attend a uni-used for culinary purposes, and the Tried his berries for veterinary medicine. Red by was well B., or Laurus Caroliniensis; white B., or Magnolia glauca; loblolly B., or Gordonia Lasianthus, are all natives of N. America.

Bay (Fr. bayer, to gape) is an inlet of the sea that is wider towards the open sea and narrower as it advances into the mainland. The term is often used where gulf would be more appro-priate, a gulf being deeper and less variable in width than a bay.

Baya, or Ploceus baya, one of the weaver-birds common to India and Ceylon; it belongs to the family Ploceide. The weaver-bird is so called from its elaborately-woven

nest. Bayadere (Portuguese bailadeira, female dancer) is the name given to the trained dancing girls of India, the nautch girls. They are usually selected from the lowest class of the people. and their dancing has a decidedly immoral tendency. Some of the pantomimic dancers are attached to the

Hindu temples. Bayamo, or San Salvador, a city on the R. Cauto, in the S.E. of Cuba, founded by D. Velazquezin 1513. Once the prin. city in the is., its trade was greatly restricted by the choking up of the river by a flood in 1616; it has suffered greatly from Present pop. about 4000.

Bayana, or Biana, a tn. of Raj-putana, India, formerly a famous fort, which still contains ruins of ancient times; pop. 9000, Bayan-Khara Mts., the Mongol

name of an extensive range in Eastern Asia. The dist. is still little explored by Europeans, and the existence of these mts. was long only known from Chinese geographers, according to

Chinese geographers, according to whom they lie in the centre of the E. Asian table-land, W. of Lake Khookhoo-nor, between 35° and 38° N. lat. and 96° and 100° E. long.
Bayard, the famous horse of the four sons of Aymon; he appears in Tasso's Rinaldo, Orlando Furioso, and Orlando Innamorato; the name is also given to a horse in Scott's Ladu of the Lake, and is frequently applied to any spirited horse.

Bayard, Pierre du Terrail, known by the honourable appellation' le bonchevaller, sans peur et sans reproche'

chevalier, sans peur et sans reproche (the good knight, without fear and without reproach) (1475-1524), born at the Château de B. in Dauphine, of a great military family; placed as a youth in the household of the Duke and also to plants which somewhat of Savoy; 1494 accompanied Charles resemble laurels. The sweet B. is the VIII. against Naples and distinct aurus nobilis, an evergreen plant which grows abundantly in S. Europe, if cornovo; served in the Italian wars and was used as the victor's laurel of of Louis XII.; present at the Battle

army Bonnivet against an

Charles V.

Bayard, Thomas Francis (1828–98), Wilmington, Delaware, and entered over 40.000. a commercial house in New York as a Bayer, G clerk; in 1848 he began to study law, and was called to the bar in 1851; he was a senator from 1869 to 1885, became Secretary of State. Democratic party in the senate, and was many times proposed as president. He was U.S. ambas. to Great Britain, 1893-7. See Edward Spencer, Public Life and Services of Thomas F. Bayard, 1880.

Bayazid, a tn. of Turkish Armenia, near the Persian frontier and Mt. Ararat, 155 m. N.W. of Tabriz. The cap, of the sanjak of the same name.

Pop. 2000.

Bayazid I., surnamed Ildirim (or Lightning) (1389-1403), born 1347, son of Murad I., Sultan of the Ottomans; spent his life in wars against the nations around the Ottoman empire; made great conquests in Servia, Moldavia, Greece, and Hungary; 1397 captured Athens. Conquered and captured Athens. Conquerca and taken prisoner by Timur, Khan of the Tartars. Died in captivity, and was succeeded by his son, Mohammed I.

Bayazid II. (1481-1512), b. 1447, son of Sultan Mohammed II.. defeated his brother (who contested the throne) at the battle of Yenishehr, 1481. He warred against the republic of Venice. the Sultan of Egypt, and Persia; he concluded treaties with Poland and the Czar of Moscow. Towards the end of his reign his sons rose against him, and the youngest, Selim, supported by the Janissaries and the bulk of the people of Constantinople, ascended the throne, 1512. B. retired to spend the rest of his days at his birthplace, Demiloka, but died on the journey at Aya, near Hassa.

Baybay, a tn. on the W. coast of Leyte, Philippine Islands, 45 m. direct S.W. from Tacloban, the cap. of the prov.; pop. (1903) 22,990. Bayberry, also called Candleberry,

or Wax Myrtle, an evergreen shrub found in the United States, the W. Indies, and Cape Colony. Its leaves are fragrant when bruised; in the W. Indies they are used for making bay rum. The berries are covered with greenish-white wax, which is collected by boiling and skimming, refined, and used for making candles and scented soap. The candles while burning are very fragrant.

Bay City, cap. of B. co., Michigan,

of the Spurs, where he was taken naw. It has considerable trade in prisoner; knighted by Francis I. lumber and fish (sturgeon, pickerel, after the battle of Marignano, 1515; bass, and whitefish), but its salt trade, mortally wounded when defending once productive, is now declining. of Its industries include shipbuilding. machinery, cement, and alkali works. Bayard, Thomas Francis (1828-98), There are also coal mines and best an American statesman. He was b. in sugar factories in the vicinity. Pop.

> Gottlieb Siegfried (1694-1738), son of the astronomer, born at Königsberg; studied the oriental and Chinese languages. Some of his works were pub, in the Memoirs of the He was the leader of the Academy of Petersburg and the Acla Eruditorum. His Opuscula were pub

with a life by Klotz, Halle, 1770. Bayer, Johann (1572-1625), astronomer, b. at Rhain in Bavaria, followed the profession of a lawyer at Augsburg. In 1603 he pub. a chart of the stars, *Uranometria*, in which for the first time he included twelve new constellations of the S. hemisphere, and also employed letters of the Greek alphabet in star-nomenclature. S. constellations are said to have been derived from the observations of a Dutch navigator.

Bayern, see Bayaria.

Bayern, see Bayaria.

Bayerx, episcopal city of Calvados dept., Normandy, France, on R. Aure, 17 m. N.W. of Caen. In the ancient cathedral was preserved the famous B. tapestry (q.v.), now in the museum. It has manufs of lace, which and tertiles and tertiles are china, and textiles, and a good trade in agricultural produce. Pop. 7310.

Bayeux Tapestry is a roll of linen 20 in. wide and 231 ft. long, preserved at Bayeux in Normandy, upon which is worked in coloured woollen thread the events connected with the invasion and conquest of England. It is not, strictly speaking, tapestry, as it is worked in sampler fashion. The work is divided into seventy-two compartments, with descriptions in Latin, and the crude and unnatural colours still retain their freshness. Various conjectures as to its origin have been made, tradition assigning it to Matilda, wife of William the Conqueror; it was more probably worked for his half-brother, Odo, Bishop of Bayeux, in 1048. It was first mentioned in the 14th century, when an inventory was made of the goods in Bayeux Cathedral, which it adorned. In 1724 a drawing of a portion of it was presented to M. Lancelot, a member of the Académie des Inscriptions, and this led to public knowledge of the work. In 1803 it was sent to Paris by order of Napoleon for a short inspection, but was shortly after returned, and in 1816 Charles Stothard was sent by the English Society of Antiquaries to make an Bay City, cap. of B. co., Michigan, accurate copy of it. His drawings of U.S.A., near the mouth of the Sagi- it were published in the sixth vol. of

Vetusta Monumenta in 1819. Sce. Jules Comte's Tapisscrie de Bayeux, 1878; Rev. J. C. Bruce's Bayeux Tapestry Elucidated, 1885; and F. R.

Fowkes's Bayeux Tapestry, 1898.

Bay Islands, a small group off Honduras, discovered by Columbus in 1502. The largest is., Roatan, is 30 m. long by 9 m. broad. These is. 30 m. long by 9 m. broad. These is, were occupied by British settlers in the 17th century, but not formally annexed until 1852. In 1859 they were ceded to Honduras. Their principal produce consists of cocoa-nuts. bananas, and other fruit, which are exported to the U.S. Pop. 3000. Bayle, Pierre (1647-1706), Fr. critic

and controversial writer, b. at Carlat in France. Educated at the Catholic University of Toulouse, where he made a profession of Catholic faith, which to Geneva; 1674 came to Paris; held the chair of philosophy at Sedan for five years; losing this by reason of a decree of Louis XIV., he went to Rotterdam. 1695 pub. the first vol. Dictionnaire Historique Critique. It was extremely popular, being unlike anything pub. before it; it was of great use before the advent of encyclopædias, and is scarcely superseded now for certain information. There have been many eds. of it, one of the most famous being by Abbe Chaufpié, who added a supple-A Life of Bayle was prefixed by P. des Maizeaux to his edition of the dictionary.

Baylén, or Bailén, tn. of prov. Jaën, Spain, 7 m. S.W. of Linares. The neighbourhood is fertile, and there are galena and blende mines. General Castaños defeated the French under

Dupont here in July 1808. Pop. 7500. Bayliss, Sir Wyke (1835–1906), an Bayliss, Sir Wyke (1835–1906), an Eng. artist. He was born at Madeley, and studied at the Royal Academy. He became president of the Royal Society of British Artists in 1888 and was knighted in 1897. His talent was directed chiefly in the delineation of interiors of cathedrals and churches; the meet notable of his maintings are: the most notable of his paintings are: La Sainte Chapelle, 1865; St. Mark's, Venice, 1880; St. Peter's, Rome, Venice, 1880; St. Peters, Rume, 1888; and The Golden Duomo, 1892. He is also the author of sev. books, including The Higher Life in Art, 1879; The Enchanted Island, 1888; Rex Regum: a Painter's Study of the Likeness of Christ, 1898; and Five Likeness of Christ, 1898; and Five Great Painters of the Victorian Era, 1902.

Baylor University is a Baptist educational institute situated at Waco, Texas, formerly at Independence in the same state. It was chartered in 1845 and removed to Waco in 1882. It has a large library and about 800

students.

Bayly, Ada Ellen, writer of popular novels, wrote under the pseudonym of Edna Lyall (q.v.).

Bayly, Thomas Haynes (1797–1839), English ballad writer and dramatist, was b. at Bath, and educated at Winchester and Oxford. His plays and novels are now forgotten, but some of his songs are still familiar. Their sentimentality, expressed facile if not very poetic verse, then exactly suited popular taste, and Shc wore a Wreath of Roses, We met-twas in a Crowd, and Gaily th Gaily the Troubadour, etc., were sung every-where. His most successful play was Perfection. He also wrote two novels, A Legend of Killarney and The Aylmers.

Bayne, Alexander (d. 1737), first professor of law in Scotland: son of John B. of Logie in Fife. Became an advocate at the Scottish bar, 1714: in 1722, professor of Scots Law at Edinburgh; edited and wrote several works on Scots Law, many of which were acute and bold.

Bayne, Peter (1830-96), a Scottish journalist and author. He graduated at Marischal College, Aberdeen, and studied theology for the ministry at

> an of the Eng. the Wecklu

Review. He was also associated with the Christian World, and contributed to numerous London periodicals. He pub. essays on De Quincey, Hugh Miller, etc., and wrote the Testimony of Christ to Christianity, 1862; and a

Life of Luther, 1887.

Baynes, Thomas Spencer (1823-87). was the son of a Baptist minister at Wellington, Somerset. He was sent to Edinburgh University, where he was a pupil, and afterwards assistant, of Sir William Hamilton. In 1850 he became editor of the EdinburghGuardian, and in 1858 was appointed assistant editor of the Daily News. Six years later he became professor of logic, metaphysics, and Eng. literature at St. Andrews University, and held this position for the rest of his life. From 1873 to 1881 he was sole editor of the ninth ed. of the Ency. and even when his health obliged him to resign part of his responsibility to Robertson Smith, he still continued to write, his best-known article being that on Shakespeare, since reprinted, with other essays, in Shakespeare Studies. His other works include an Essay on the New Analytic of Logical Forms. 1850, and a translation of Arnauld's Port Royal Logic.

Bay of Islands, a deep and spacious

inlet on the N.E. coast of New Zealand, shut in by a number of is. It is naturally fitted to become an important harbour, but at present has only one small settlement, Russell.

Bayonet is the name of a short spear - like weapon as used in the British army, 12 in. in length. When not in use it is carried in a scabbard on the soldier's left side; when in use it is fixed to the muzzle of the rifle, and forms the thrusting weapon of the infantry. The original weapon is thought to have been invented at Bayonne in the 17th century; it was triangular in section, and had a taper-

ing point. Bayonne, fortified city of Basses-Pyrenées, Gascony, France, at the confluence of the rivers Adour and Nive, 3 m. from the sea, 4 m N.E. of Biarritz, and 18 m. N.E. of the Spanish frontier at Fuenterrabia. The rivers divide it into three parts, Great and Little B., and St. Desprit. The harbour admits vessels of 2500 tons, but is rendered difficult of access by the bar on the Adour. The depth at its entrance at high water is 16-19 ft. The city is well built, with good quays and promenades, a mediæval cathedral, and a fine citadel by Vauban. Chief industries, shipbuilding, leather dressing, distilling, and manufs. of pottery and chocolate. It was for-merly famous for its hams. The city has been frequently besieged, but

nas been requently besieged, But never taken. It was the ancient Rom. Lapurdun. Pop. 27,601.

Bayonne, a city of Hudson co., New Jersey, U.S.A., on New York and Newark Bays, 6 m. S.W. of New York. It lies just S. of Jersey City, from which it is converted by the from which it is separated by the Morris Canal, and opposite Staten Is. from which it is separated by the Kill van Kull. It is largely residential, but has manufs. of boilers, chemicals, paint, borax, etc., and large petroleum refineries. The Port Johnson Coal Docks are near. Pop. 45,000.

Bayou (Fr. boyau, channel), a term originally applied in some of the southern states of N. America to a branch of a river or lake, but now sometimes loosely applied to streams

of various descriptions.

Bay Psalm-Book was the first book pub. in the American colonies. It appeared in 1640, under the guidance of Richard Mather, Thomas Welde, and John Eliot, and was a rendering into verse of the Psalms.

Bayreuth, see BAIREUTH.

Bay Rum, an aromatic liquid, obtained by mixing oils of bay with alcohol, water, and oils of pimenta and orange-peel. It is of value as a perfume and cosmetic.

Bay State, a name often applied to the state of Massachusetts, U.S.A.,

which was estab. in 1628-30 as the

Massachusetts Bay Colony.

Bayswater, a dist. of London N. of
Hyde Park. It is 4 m. W. of St. Paul's, and is situated on the Metropolitan District and Central London Rail-Wavs.

Bayuda or Bahinda Steppe is a large desert of Nubia, Egyptian Soudan, in the bend of the Nile, N. of Khartum. which contains sev. rocky mts. and

sparse vegetation.

Bay Window, the name given to a window projecting from the front of a building, and forming part of a rectangle or polygon. If semicircular it is called a bow window. B. Ws. were introduced into England about the end of the Wars of the Roses, and were very common in Tudor houses. A very fine example is that of the banqueting-hall at Hampton Court. A B. W. well above ground supported by a bracket or corbel, is properly termed an oriel.

Baza, the Rom. Basti, is a tn., prov. of Granada, Spain. It is the seat of a bishop, and was prosperous under the Moors. It is situated in a fertile valley which produces hemp, flax.

fruit, and grain, and is famed for its red wines. Pop. 13,000.

Bazaar (Persian bazar, market), the Oriental name for a market-place, where various objects are exposed for sale. The most noteworthy of these are to be found at Cairo, Constantinople, Ispahan, and Tabriz. In the W. the term has been extended to shops which sell fancy goods, and to sales of fancy articles which are contributed gratuitously for charitable or religious purposes.

Bazaine, François Achille (1811-88), marshal of France, entered the army as a private soldier in 1831, served in Algeria, and in four years became lieutenant, with the Cross of the Legion of Honour. In 1839 he was a captain, and a few years later brigadier-general. He distinguished him-self in the Crimean War, and was made governor of Sebastopol on its Gaining fresh laurels capture. Italy (1859) he was appointed to command, first a division, and afterwards the whole army, in the Mexican expedition. Here, however, he was accused of mixing up political and personal aims with his generalship, and on returning to France in 1867 was coolly received by Napoleon III. In 1870, at the outbreak of the Franco-German Warhe was appointed to command the third corps, and afterwards the whole army, of the Rhine. He has been greatly blamed for the defeat at Spicheren, when he allowed General Frossard to be beaten unsupported; but this was little to what followed. B. retreated with his

Epic, 1834; Venetia, 1837; and Henrietta Temple, 1837. During this period of his life he lived as a fashionable young man about town, and was received almost everywhere. He was credited with a number of extravagances in dress, and to such an extent was this remarked on later that he wrote to the press denying that he had committed such extravagances. He pub. a number of political pamphlets, and made no secret of the fact that he intended to go far as a politician. In 1837, on the death of William IV., a fresh election took place, and he was invited to contest Maidstone, for which constituency he was returned in that year, with Mr. Wyndham Lewis as his colleague. In Dec. of the same year he essayed his first speech in parliament, and it was on this occasion there occurred that famous scene when, howled down by the House, he threw defiance in its face and warned the mockers that the day would come when they would hear him. To those who listened, and were judges, even this failure showed promise of the excellence to come later. In 1839 he published his novel. Tragedy of Count Marcos, and in the same month he married the widow of this letter the same month he married the widow of the latest the latest the same month he married the widow of the latest the his late colleague, Mr. Wyndham Lewis. In her he found the sympathy and courage which were to be so necessary an asset in his life. With her fortune he was able to buy an estate at Hughenden and to establish himself as a country gentleman. From the time of his failure in parliament he awaited his opportunity, known in the House only for the bitterness with which he attacked the Whigs. By 1842 he was the leader of the Young England party. But in 1846, in Jan. of that year, by his famous onslaught against Sir Robert Peel in the Corn Law debates, he became the virtual leader of the Conservative party, though nominally it remained under the leadership of Lord George Bentinck. In 1844 had appeared Coningsby, in 1845 Sybil, and in 1847 Tancred, three political novels which were intended to explain the origin and the positions and duties of the great political parties. In 1852, as leader of the House, and Chancellor of the Exchequer, he introduced a free trade budget which was defeated because of the extension of the house-tax and income-tax. this memorable occasion he gave utterance to the dictum 'that England does not love coalitions.' In 1858 he again returned to office, but the 'fancy franchises' drove him and his party to a sojourn of seven years in the political wilderness, during householders to 'the moot.' After which period Disraeli added considerably to his reputation as a of the manor and the church, but

debater and a politician. In 1867 he came back again into office in the third Derby administration, and then came one of the most striking political incidents, the 'leap in the dark' which 'dished the Whigs.' In that year he introduced a Reform Bill more democratic and sweeping than anything which the Liberals had introduced. In the next year he succeeded Lord Derby as the head of the administration, but at the end of the year, not having a majority, he resigned. In 1870 he pub. Lothair. In 1874 he began his second administration, an administration noted chiefly for its foreign and imperial policy; in 1875 he acquired the half rights in 1875 he acquired the half rights in the Suez Canal; in the following year he proclaimed Queen Victoria Empress of India, and in the same year retired to the House of Lords as Earl of B. The Bulgarian atrocities did not excite him to pity, but rather made him declare in face of the threatened aggression of Russia that our policy was to support to the best of our ability the sinking fortunes of Turkey. When the aggression became still more threatening he sent a fleet to the Dardanelles, voted sent a fleet to the Dardanelles, voted money for war purposes, and stationed an Indian contingent at Malta. In 1878 followed the Congress of Berlin which raised B. to the greatest height of his power, and gave Russia all she wanted and England 'peace with honour.' The wars in Afghanistan and Zululand, together with the commercial depression, gave the opposition their opportunity, and the imperial policy was condemned at the general election of 1880. A large Liberal majority was returned and the gov. resigned. In the same year appeared the novel Endymion, and in April of the following year, on the April of the following year, on the 19th of that month, the great statesman passed away. It was proposed that he should be buried in Westminster Abbey, but the terms of his will had forbidden that, and he was buried at Hughenden. 'A combination of genius, patience, intrepidity, and strength of will, such as occurs only at intervals of centuries, could alone have enabled him to succeed, and that combination is greatness.' and that combination is greatness.' The first 2 vols. of the authoritative life based on his papers were pub. in 1910 and 1912, ed. by W. J. Moneypenny. See also Memoirs by T. E. Kebbel, J. A. Froude, and H. Gorst; Sir W. Fraser, Disraeli and his Day.

Beadle (also Bedel, A.-S. bydcll, a

summoning officer), an official whose history has had many variations. Orignally, in Saxon times, he called householders to 'the moot.' After the Conquest he was an officer both

only in official processions. In the Scottish Church the B. attends on the minister when divine service is being held.

Beadon, Sir Cecil (1816-81), lieutenant-governor of Bengal. He was educated at Eton and Shrewsbury, and entered the Bengal civil service at the age of eighteen. He held important secretarial posts subsequently with great success, ultimately be-coming, at the instance of Lord Channing, lieutenant-governor of Channing,

Bengal. He died in 1881, after a residence of thirteen years in England. Beads, ornaments which have been used for decoration and barter from used for decoration and parter from remote times, beautiful examples being found in early Egyptian tombs. At the present time they are still the medium of exchange with barbaric nations. They are made of gold, gems, coral, glass, etc. The manuf. of glass B. in Britain is carried on chiefly variety and quantity of B. made there. In the process of manufacturing glass B., the glass is blown into a bulb, and drawn out into long tubes. The B. are then pinched or cut off, and heated in cylinders which rotate. To prevent the sticking together of the B. sand and ashes are put into the cylinders.

Bead-tree, or Melia Azedarach, is tropical plant cultivated for its a tropical plant cultivated for its flowers, which somewhat resemble the lilac. The berries are sweetish, and are sometimes said to be poisonous.

Beagle, the smallest variety of Eng. hound, much used in hare-hunting, there being over forty packs in Great Britain and Ireland. It has a very keen scent, great powers of endurance, and intelligence. It is 10-16 in. in height, has long, thin, pendulous ears, a deep chest, and strong widely set shoulders. The coat is thick and flat and of the usual variety of colours of the hound.

Beagle,' Voyage of the. In 1831 the British gov. sent out a surveying expedition in the B., a brig of only 235 tons, commanded by Captain Fitzroy. In this voyage, which lasted five years, Charles Darwin, as honorary naturalist on the staff, won his first

laurels.

Beak, see Bill.

Beaked, in heraldry, indicates that a bird has a bill which is of a different colour to the rest of its body.

Beaker (Gk. βίκος, wine-jar), a cylindrical or conical vessel made of annealed glass used in chemical operations for making solutions, in analyses, and for various other purposes.

stable. The university bedells, once scholar, born at Devonport; educated important functionaries, now figure there and at Cambridge only in official processions. there and at Cambridge; ordained 1852, and became a naval chaplain on board H.M.S. Sybille, which went to the China station. B. spent his spare time in acquiring the language: acted as naval interpreter during the war of 1856-8, and continued his studies after settling in England. His valuable works include The Travels of Fah-hian and Sung-yun, 1869; A Calena of Buddhisl Scriptures, 1871; The Legend of Sakya Buddha, 1875; Texts from the Buddhist Canon, 1878; etc. Beal, Robert (1541-1601), diplomatist and antiquary. His early life is shrouded in some obscurity. At an carly age he gave considerable attention to the existing theological doc-trines, and held views of an un-orthodox nature, for he was com-pelled to leave England during Mary's reign, until Elizabeth's accession. He became Walsingham's secretary 1570, and frequently carried of patches between London and Paris. He entered parliament in 1572, and it devolved upon him to read to Mary, Queen of Scots, her death warrant. His works are voluminous, and include treatises upon complicated marriages.

> Queen of Scots.
>
> Beale, Dorothea (1831-96), a pioneer in the improvement of feminine education, was the daughter of a London physician. Early in life she showed a strong bent towards educational work; studying in 1848 at the Queen's College for Ladies she rose to be one of the prin. teachers. In 1857 she was appointed head of the school for clergymen's daughters, in Westmoreland, and in 1858 took charge of the Ladies' College at Cheltenham, which she raised in a few years to very high rank. Deeply religious,

she was also broad-minded, and had

Discourse after the Massacre of St. Bartholomew's of which he was an eye-witness; A Book respecting Cere-

monies, the Habits, the Book of Com-mon Prayer, and the Power of Ecclesiastical Courts; and The Order

and Manner of the Execution of Mary.

great influence over her pupils. Beale, Lionel Smith (1828–1906), a distinguished English physician and physiologist, was born in London, and studied at King's College, where he afterwards held various professorships in the medical schools (1853. 1896). He was a frequent contributor to the Lancet, and wrote many valuable medical works, some of which go far beyond the merely technical range, such as The Mystery of Life, 1871; Life and Vital Action in and Disease, 1875; Health Vitality and Natural Religion, 1900.

Beale, Mary (1632–97), an English portrait painter of the 17th century, daughter of a clergyman, Craddock by name. She was taught painting by Sir Peter Lely; she copied the It. masters, and was employed largely by the clergy. Her husband, Charles B, was a painter and colour maker. Her pictures, says Walpole, have much nature, but are heavy in colour.

Beam (from O.E. béam, a tree; cf. hornbeam and whitebeam), a piece of timber, as a house-beam, a weaver's The cross-timbers of a beam, etc. ship are her beams, so that when she heels over considerably she is 'on her beam-ends; ' hence a common phrase

signifying distress or difficulty.

Beaming is a dept. of weaving in which special workmen, called beamers, wind the warp threads on the weaver's beam firmly and evenly, ready to be woven. See WEAVING.

Beaminster, an anct. mrkt. tn. and parish of Dorset, 6 m. from Bridport, situated on the Brit. It is mentioned

in the Domesday Book.

Beamish, North Ludlow (1797-1872), military writer. He was a native of Cork, and obtained a commission in the Irish Guards in 1816. (1797 -He was a He translated various military works from the German. He was an associate of many learned societies. Among his works of antiquarian value is a summary of Rafn's researches into the early Scandinavian discovery of America.

Beam-tree, or Pyrus aria, is a species of Rosaceæ which grows to a height of 20 to 40 ft. in Europe and Asia. The leaves are ovate, with serrated edges, and are white and downy underneath; the flowers grow in terminal corymbs, and the small red fruit resembles a haw. It is acid and astringent, and is sometimes called The wood is sorb or service-berry. used in turning, and beer is made by fermentation of the fruit.

Bean is the name given to the seeds of various plants, chiefly to those of the order Leguminosæ. The common or broad bean is known as Vicia faba, or Faba vulgaris, and has many varieties. The French or kidney bean is Phaseolus vulgaris, and the scarletrunner P. multiflorus; both of these plants are grown in England, and the pods are eaten as vegetables. The latter is also used as an ornamental climber. P. lunatus, the Lima or duffin bean, is a native of S. America, with broad flat pods and short flat seeds. P. Mungo, the Mungo bean or green gram, and P. radiatus, the black gram, are beans which are given to horses. Dolichos biflorus is also called the horse-gram in India, and is excellent food for

Beside being F.R.S. he had many cattle, while the pods of D. Lablad, the foreign scientific honours. consumption after the manner of kidney beans. Both Glycinc Soja and G. hispida yield Soja beans; they are eaten in Japan, used as green fodder, and oil is extracted from the seeds. Ceratonia siliqua is the Mediterranean species known as the locust or carob species known as one nouse of care-bean; Vigna sirensis is the cherry-bean or cow-pea of tropical Asia; Mucuna utilis, the tropical velvet-bean; Canavalia ensiformis, the sword or sabre bean of India; Physostigma venenosum, the ordeal bean of Calabar.

Of a few plants which are not leguminous, but whose seeds are known as beans, may be mentioned Nelum. bium speciosum, the Egyptian or sacred bean eaten in Cashmere; Strychnos Ignatii, St. Ignatius bean, with poisonous properties; Menyanthes trifoliata, the bog- or buck-bean of Europe, Asia, and N. America. The bean-caper is an eastern plant, Zygophyllum fabago, whose flower-buds

are eaten as capers.

The value of beans as food is very great on account of the nitrogenous or proteid matter they contain. As forage for horses, cows, sheep, and pigs they have fattening and heat-giving pro-perties. The enemies to which they are subject are two, fungi and insects. When attacked by fungus the beans can still be used as rich manure, but if by the bear-aphis, or black dolphin, they can often be saved by having their tops cut off. They grow best in warm, light, well-manured soil, and enrich the ground themselves for future use.

Bean-caper, a substitute for capers.

See Bean.

Bean-feast, a name derived from an old custom prevalent in Western Europe in connection with 'Twelfth Europe in connection with a well-in Night 'festivities. A bean was hidden in a large cake, and the person who got the slice containing it was 'king' of the revels. Though the festival was a religious one (the feast of the Epiphany), it was, like many other ceremonials, an adaptation from according During the Borner Saturpaganism. During the Roman Saturnalia, said to have been estab. by Tullus Hostilius (c. 650 B.C.), but probably much older, the children drew lots with beans to decide who should be king. This was a winter festival, and with a slight atteration of date was Christianised into the 'Feast of the Three Kings.' In old accounts of Twelfth Night revels in our own country, the bean-king or queen plays a prominent part. The French also have a phrase implying good luck, 'Il a trouvé la fève au gateau.' In later times the 'bean-feast' has lost its old associations, and now signifies

firm's employees.

Bean

Bean-Goose, or Anser segetum, a small species of European wild goose with a comparatively short, black and red beak, which obtains its name from bear (Ursus Americanus) is a smaller the resemblance of the upper nail of its bill to a horse-bean, or else from the fact that it eats the beans sown in the spring. It is of a grey colour, and breeds largely in the Hebrides.

Bean-King's Festival was held on Twelfth Day, the Feast of the Epi-phany, Jan. 6. Originally observed in honour of the Three Kings, or Magi. A large cake in which a bean was hidden was produced and divided among the assembled guests. The finder of the bean was proclaimed Bean-King for a year, on condition that he should provide the entertainment on the next Twelfth Day. The custom used to prevail in England, but received more attention in France.

Bean-tree, a name given to species of two genera of Leguminosæ which occur in the tropics. Castanospermum Australe, also known as the Australian chestnut, has edible seeds which resemble chestnuts in flavour when species than the brown bear, of which Eruthrina corallodendron is: roasted. the other species, which is a native of

distributed carnivorous (often om-nivorous) mammals of the family Urside and div. Arctoidea. They are large, ungainly animals, with short tails, shaggy fur. plantigrade feet, curved claws which are non-retractile, broad, clongated heads ending in a snout. Their usual method of progression is on all fours, but they are capable of walking upright with a clumsy, shuffling gait, and most of them are splendid climbers. They do not usually attack man unless provoked, but when roused they are very ferocious; in their strong arms they can hug a human being until suffo-cated. Though they sometimes eat flesh, they prefer fruit and honey, and many of them are fond of ter-mites, or white ants. Most of them eat largely during the summer months, and then hibernate, coming out again in the spring in a weak but flerce state. During the winter months the cubs are born, and unless carefully guarded by their watchful mothers they fall a prey to the greed of their fathers. The young are blind at birth.

dists. of Europe, from the Arctic circle Bear, Great and Little to the Alps and Pyrenees, and is also Majon and Ursa Minor. found in Asia. It is about 6 ft. long Bear-baiting, a cruel s

the annual feast or 'outing' of a and 3 ft. high at the shoulders, yet it can easily climb rocks and trees: it can attain the age of fifty years. The fur of this animal is of a yellowish colour in youth. The American black



it is thought to be a variety. It is an object of great veneration among the Indians. The grizzly bear (*U. horribilis*) is a native of N. America; it is

Jamaica.

Bear, Bere, or Beer, a common ribilis) is a native of N. America, has barley (q.v.).

Paralle a small genus of widely
Record found in the Arctic maritimus), found in



POLAR BEAR

regions, is the largest species, attaining a height of 9 ft., and lives on seals and fish. The spectacled bear (U. ornatus) is a smaller species with ringed eyes, found in the Andes; and the sloth bear (Melursus labiatus or ursinus) dwells in mountainous parts of India and lives chiefly on termites. The various species have many distriction in the similar points. The brown bear (Ursus led about by Indian mountebanks arctos) is spread through all the mt. and jugglers.

Bear, Great and Little, see URSA

Bear-baiting, a cruel sport which

was popular in Europe for many cen- the B. was in fashion, but since the turies. It was greatly in favour with the ancient Roms., and was popular in England from Norman times down to the 18th century. Private beargardens, or baiting-places, were kept by nobles and gentry, beside those provided by caterers for popular amusement, such as the famous 'Bankside,' where the charges were 'a penny for admission, a penny at the entry of the scaffold, and a penny for quiet standing.' Mary Tudor and Elizabeth were both fond of witnessing this sport. Every one remembers the enthusiastic description of it by Sussex, in Kenilworth, and the queen's amused appreciation of his eloquence! The Privy Council in 1591 ordered all theatres to be closed every Thursday, because baitings generally took place on that day, and actors could not be allowed to prejudice such excellent entertainments by their competition. Another favourite day was Sunday, which was a further reason, beside that suggested by Macaulay, for the Puritan interdic-tion of such sports.

Bearberry, or Arctostaphylos, is a genus of Ericaceæ which grow in Alpine regions and in N. America.

A. Alpina, the black B., is not so common as the evergreen A. Uvaursi, red B., but both grow in propulsions of Erichard and mountainous parts of England and Scotland. The flowers show when the snow disappears, and the soft berries, containing one to five seeds, are eaten by grouse and other birds. The whole plant is used by tanners, and dyes a greyish-black colour.

Bear Lake, Great, is a large freshwater lake in the N.W. of Canada. Its shape is irregular, and it has an area of over 11,000 sq. m. The water is extremely transparent and abounds with fish, especially the so-called herring salmon. It has an outlet in the Great Bear riv., which flows into the Mackenzie.

Bear River, a stream about 450 m. long, rising in the Rocky Mts., and flowing after a circuitous course through Utah and Idaho, into Great Salt Lake. On its banks are mineral

springs containing magnesia, etc.

Beard. The fashion of the B. has varied considerably in various times Though Pliny says and countries. the Romans did not begin to shave until A.U.c. 454, yet in later times the first day of shaving was considered as the entrance to manhood and was kept with great fewtivities. Cesar says that the ancient Eritons left the hair long only on the upper lip. The Saxons were Bs., but the Normans shaved the whole of the face. The sepulchral monuments of kings and reign of James I. the practice of shaving has become more and more general.

Beard, George Miller (1839-83), American physician, b. in Connecticut. After serving in the U.S. navy for some years he settled in New York and became famous as a specialist on the character and treatment of nervous diseases, on which he wrote sev. works, his last being the Study of Trance, 1882. Beard, John (1716?–1791), English actor. He received a musical training

and gained some reputation as a singer at Covent Garden. Loss of hearing caused his successful career to come to an end. It is noteworthy that some of Handel's finest tenor passages were composed particularly He died in Feb. 1791 at

Hampton, Middlesex.

Beard, Thomas (d. 1632), English divine. He was educated at Cambridge. Soon after the acceptance of the rectory of Hengrave, Suffolk, B. became headmaster of Huntingdon hospital and grammar school, where he was Oliver Cromwell's school-master. His most famous book is called *The Theatre of God's Judge-*ments. In this book the first account of Marlowe's death appeared.

Beard Grass is the popular name given to a British species of Polypo-gon. This genus of Graminew is sel-dom found in Britain and is a native

of warm and tropical countries. Beard Moss (Fr. Barbe de Viellard) belongs to the genus Usnea of lichens. It creeps over stems and branches of trees, hanging down in thick trails,

whence its name.

Beardsley, Aubrey (1872-98), blackand-white artist, b. at Brighton, d. of consumption at Mentone. Worked for various illustrated papers at the age of twenty; and next year illustrated La Morte d'Arthur, which at once assured his fame. He was editor of the Yellow Book, but was expelled from that position: he joined with Mr. Arthur Symons in 1895 to edit the Saroy, an avowed rival to the Yellow Book. He illustrated the Rape of the Lock, Oscar Wilde's Salomé, Mademoiselle de Maupin, and Ernest Dowson's Pierrol of the Minute. He was at work on initial letters for Volpone three weeks before he died. His line-drawings were extremely delicate and exact, and showed that fastidious elegance that appears even in the most grotesque of his drawings. He had a great opinion of his writing too, and once described himself as a man of letters. He was not, like Blake, the victim of his hallucinations, for when onceasked nobles show that for many centuries whether he saw visions, he replied,

'No, save on paper.' See Arthur wooded heights to the E. end of the Symon's Aubrey Beardsley, new ed., Lake of Thun, Switzerland.

1905: Ross's Aubrey Beardsley. 1908. Beath or Baith, a parish of Scot-

Bearer Company, first introduced into the British army as a distinct organisation in 1873, then connected with the field hospital. Both are now parts of the Field Ambulance Corps.

Bearing, the direction of a line drawn from one point to another, is a term usually employed for the points of the compass; e.g. if the point B is due N.W. of A, it is said to bear N.W. of A, and its B is said to be N.W. To take Bs. is to ascertain the points of the compass on which points lie.

Bear-leader is a term used jestingly of a person who is in charge of a young man of wealth when making a tour of the world, or of one who acts as guide to a celebrity. It arose from the custom of leading about a tame bear, muzzled and on a chain, for

entertainment.

Béarn, ancient prov. of France, now included in the dept. of Basses-

Pyrénées. Its capital was Pau. Bear's Breech is a name sometimes

given to the genus of Acanthacea for their pains.

name applied to various pomades which are said to promote the growth of hair. B. G. is believed to strengthen the hair, but these preparations are usually manufactured from beef-marrow, lard, spermaceti, or a vegetable oil, together with an agreeable scent. Whortleberry, or Bear's Arcio-

stanhulos Uva-ursi, is the name sometimes applied to the red bearberry

Beas, or Bias, a riv. of the Punjab. It rises in the Himalayas and flows into the Sutlej. The Beas and lower Sutlej formed the 'Hyphasis,' which marked the farthest progress of Alexander the Great.

Beast, Number of the, see APOCA-

LYPTIC NUMBER.

Beat, a word used in various senses, the commonest being: in music, (1) the divs. in a bar, (2) the movement of a conductor's baton, (3) the tremulous effect produced when two notes very nearly in unison are sounded together; in physiology, the throb-bing of the pulse or heart; in nautical parlance, the zig-zag sailing of a ship working up against the wind. The round of a sentry or policeman is also called his beat. As a verb the word is used both literally and metaphorically.

Beatenberg, or Saint Beatenberg, a summer health resort situated on the

land, situated in the co. of Fife. It is 51 m. N.N.W. of Aberdour. Most of its inhab., numbering 4315, are engaged in its coal and iron mines.

Beatification, the act by which the pope permits a 'Venerabilis ser-yus Dei,' one whose name has been brought forward as worthy of B., i.e. to be entitled to be called 'Blessed' (beatus). The privileges contain various limitations, and B. is generally only preliminary to canonisation (q.v.).

Beating the Bounds, or Perambulation, is a custom common to several European nations under different forms. In England, on Holy Thursday, or Ascension Day, the clergyman of the parish, with some officers and boys, used to walk in a procession to each of the different parish boundaries, and when there the boys would beat the boundaries with pealed willowwands in order to remember their location. Sometimes the boys themselves were the objects of castigation and received a small sum of money

known as Acanthus (q.v.).

Bear's Foot, or Helleborus fortidus, is a common species of Ranunculacee in Europe. It is related to the Christmas rose.

Bear's Grease, or Bear's Oil, is a name applied to various pomades to study civil and canon law, and which are said to promote the group in 1519 was appointed. in 1519 was appointed resident for Scotland at the French court. In 1533 B., now prothonotary apostolic (a high office in the church), was sent as an ambassador to France to treat for a league with the French king and a marriage between James V. and Princess Magdalene. In 1537 he pro-cured the papal bull for the erection of St. Mary's College at St. Andrews; in 1538 became a cardinal, and 1539 Primate of St. Andrews. At the death of James V., 1542, B. produced a will in which he was stated to be appointed regent for the infant daughter of the dead king; this was a forgery, and James, Earl of Arran, became regent. B. still had great influence, and with the help of the nobles forced the regent to abjure the doctrines of the Reformation. In 1546 he tried and condemned George Wishart to be burnt. He opposed the designs of Henry VIII. of England for the marriage of Mary to his son Edward, and that monarch characteristically expressed a desire that B. should be assassinated, and B., after witnessing the marriage of his illegitimate daughter to the Earl of Crawford, was put to death by a party of reformers. His Lat. works were insignificant, and are now forgotten. Beaton, James, or Bethune (d.1539),

Scottish prelate, uncle of Cardinal David B., was Lord Treasurer of Scotland, archbishop of Glasgow, 1509; chancellor, 1513; and archbishop of St. Andrews and primate, 1592 As 2020 of the meants during the imperior of Moffat, in N. Dumfriesshire. It bishop of St. Andrews and primate, 1522. As one of the regents during James V.'s minority, he was a chief mover in the Fr. alliance. Patrick Hamilton and other reformers were burned during his primacy. He died 1539. Another James B. (1517-1603), was a nephew of the cardinal. He was in the confidence of Mary of Lorraine when regent, and was the last Rom. Catholic archbishop of Glasgow, 1556. to 1560, when he fled to France, taking with him the archives of the see, which have never been recovered.

Beatrice, a city and co. seat of S.E. Nebraska, U.S.A. It is situated in the valley of the Big Blue R. and has a trade in dairy produce. Pop.

7875. Beattie, James (1735-1803), born at Laurencekirk in Kincardine; 1749 entered Marischal College, Aberdeen, where, in 1760, he became professor of moral philosophy and logic. 1770 he pub. his Essay on Truth to confute Hume. It made a tremendous stir at the time. If he is now remembered at all it is by the mention of it in the lives of his great contemporaries; Johnson, always zealous for Christianity, praising it at the cost of Goldsmith, who estimated the ephemeral effusion at its true worth. George III., who could not know better than any one else, received B. with great warmth, and the champion of religion's fortune was made. Joshua Reynolds introduced B. into a metaphorical painting as the Defender of Truth, with Hume and Gibbon skulking low with diabolical faces. The caricature could not be strained overmuch, for B.'s face had that stupid placidity which might be called angelic, and Gibbon always looked diabolical enough. The whole affair is now deservedly forgotten. In 1771 B. published *The Minstrel*, a poem for which alone he is remembered, and in 1773 received a pension. He died of palsy. Life by Sir Wm. Forbes. See Boswell's Johnson and Forster's Goldsmith, passim.

Beattie, William (1793-1875), Eng. dector west and electicals.

doctor, poet, and classical scholar. He was born at Dalton, Annandale, and was educated at Clarencefield Academy, Dumfriesshire. He entered Edinburgh University as a medical student in 1812. For fourteen years he attended the Duke and Duchess of Clarence, receiving in return a service of silver plate. He practised in Hampstead for eighteen years, and after-wards travelled in Switzerland and

of Moffat, in N. Dumfriesshire. It forms the junction on the Caledonian Railway for Moffat.

Beaucaire, a town in the dept. of Gard, S.E. France. It is situated on the Rhone, at the head of the Canal de B. The manufs. are silk, woollens, and leather. There are stone quarries in the neighbourhood. Pop. 7000.

Beauce, co. in the prov. of Quebec, Canada. It lies to the S.E. of the prov., on the N. frontier of the U.S. The Notre Dame Mts. are in the dist.

and also Lake St. Francis.

Beauce, La, is a dist, in Central France, with an area of 2800 sq. m. It includes part of Eure-et-Loir and Loir-et-Cher. Wheat is largely cul-

tivated.

Beauchamp, the name of an anct. and noble family of England. founder, Walter de Beauchamp, obtained large estates in Worcestershire by his marriage with daughter of one of the Conqueror's barons; from him descended William of Elmley (whence this family is styled the Beauchamps of Elmley), whose marriage with the heiress to the earldom of Warwick in 1268 brought Warwick Castle and the earl-dom to his son. Of the B. Earls of c commemorated in the B. Chapel in St. Mary's Warwick famous B. Chapel in St. Mary's Church, Warwick, the prin. was Guy, the 'black cur of Arden,' the enemy and executor of Piers Gaveston, and one of the Lords Ordainers in the opposition to Edward II. He d. in 1315. His sons, Thomas and John, were two of the first garter knights, and Thomas was one of the Lords Appellant, and imprisoned in the B. Tower of the Tower of London. The last B. Earl of Warwick died in 1445, and his sister, Anne, brought the earldom to the Nevilles on her marriage with Richard, the kingmaker. The present Earls B. are descended from William Lygon (1747 - 1816), who claimed descent through the female line from a cadet branch of the anct. family, the Bs. of Powycke. The viscounty of B. of Hache, granted to Edward Seymour, Lord Protector Somerset, belonged to a distinct family in Somersetshire. The title remains with the Marquis of Hertford, and the name in the family of the B. Seymours.

Beauchamp, Alphonse de (1767-1832), historian, b. at Monaco; joined the Sardinian army, and was imprisoned for refusing to serve in the war against the French republic. He came to Paris and obtained a government post at the ministry of police at the land of the Waldenses. He pub. ment post at the ministry of police at illustrated works on the Danube, the head of the press bureau. In 1806

he resigned a Other works are: Vie au 1814: Ménoires ed inédits pour servir à l'histoire Con-temporaine, 1825. He only revised Fouché's Mémoires, often attributed to him. See L. Madelin, La Révolu-tion Française, 1900.

Beauchamp, William Martin, Amer-

ican ethnologist and clergyman, born in Coldenham, Orange co., N.Y., in 1830. For some time he held a cure in Baldwinsville, N.Y., and in 1886 was made examining chaplain for Central New York Diocese. He has made valuable archæological researches, especially among the Iroquois Indians. Among his works may be named The Iroquois Trail, 1892; Aboriginal Chipped Stone Imple-

we named the Iroquous Trail, 1892; Aboriginal Chipped Stone Implements of New York, 1897; and History of the New York Iroquois, 1905. Beauclerk, Topham (1739-1830), the friend of Samuel Johnson, and member of the famous Club. He was a grandson of the first Duke of St. Albans. His wit, his infallible taste in literature and Iroquelegas a man of literature, and knowledge as a man of the world, endeared him to Johnson, and he figures largely in Boswell's

Life.

Beaufort, cap. tn. of Carteret co., N. Carolina, U.S.A. It is situated at the mouth of Newport R., S.W. of Cape Lookout, has a good harbour, and is a popular summer resort. Pop. 2181.

Beaufort, a town in the Maine-et-Loire dept., France, with a trade in

corn, fruit, and linen.

Beaufort, cap. to. of B. co., S. Carolina, U.S.A., situated on Port Royal Is., on the B. Riv., 16 m. from the sea. It has an important harbour. Its good climate has made it a popular winter resort. The 'rock-river' phosphate beds near B. are important. The tn. was first permanently settled, 1710, in honour of Henry Somerset, Duke of Beaufort, Pop. 4110, mostly

negro.

Beaufort, the name of a noble Eng. family, members of which were Earls and Dukes of Somereet and Earls and Marquesses of Dorset; also the title of a dukedom, borne by members of the family of Somerset, descended from the Bs. The name of B. was borne by the children of John of Gaunt by Catherine Swynford, who were legitimated after their parents' marriage in 1396. Of these, John (d. 1410), Earl of Somerset, a Marquess of Dorset, was a supporter of Richard

he published his best-known historical was one of Henry V.'s generals; work, Histoire de la Vendée et des Henry (d. 1447), was Bishop of Win-Chouans, which led to the loss of his chester and Cardinal (see Beatorort, post and his retirement to Rheims. Henry, Cardinal). Margaret, daugh-He returned to a post in 1811, which ter of John, third Earl of Somerset he resigned at the Restoration. (1403-44), married Edmund Tudor, Other works are: Vie du général Earl of Richmond, and was the Moreau, 1814; Ménoires secrets mother of Henry VII. Three successions de la chief in nous certific de Visidoire Consider Restoration. Earls and Indian Consider Restoration. sive Bs., Earls and Dukes of Somerset, were killed or beheaded during the Wars of the Roses, supporting the house of Lancaster. Charles, the illegitimate son of one of these; Henry, third Duke of Somerset, beheaded after Hexham, 1464, was a favourite of Henry VIII., and made Earl of Worcester; his descendant, Henry, fifth Earl, was a loyal supporter of Charles I., and was made a marquess in 1642; in 1682 the third marquess was made Duke of B., the title now held by the ninth duke.

Beaufort, Henry (c. 1377-1447), cardinal and bishop, was the son of John of Gaunt and Catherine Swynford, born out of wedlock but legitimated in 1397 (see Beaufort, family). He entered the church and was made bishop of Lincoln in 1398, and on Henry IV. attaining the throne he became chancellor, 1403, and bishop of Winchester, 1404. He was also chancellor in 1413, and in 1424. During the reign of Henry V. and the minority of Henry VI. he was a prominent political figure, being the leader of the party opposed to Humphrey, Duke of Gloucester, especially in the matter of making peace with France. In 1426 he was made a cardinal by Martin V., for whom he had voted in 1417 at the Council of Constance, and was sent as papal legate to conduct a crusade against the Hussitesin Hungary and Bohemia. He crowned Henry VI. as king of France in 1431. Charges were made against him by Gloucester, and attempts to deprive him of his see He refounded and endowed failed. the hospital of St. Cross near Winchester, which still exists, and on sev. occasions advanced large sums of money to the crown. He died Palace. Winchester. at Wolvesey Palace. Winchester. See Radford. Henry Beaufort. 1908; Creighton, History of the Papacy, 1897; Stubbs. Constitutional History, vol. iii.. 1895.

Beaufort, Louis de (d. 1795), Fr. storian. Little is known of his life, historian. and he is chiefly remembered as one of the first writers who questioned the trustworthiness of the classical historians in the early history of Rome. His works include: Dissertation sur l'Incertitude des cinq premices siècles de l'Histoire Romaine, 1738, 2nd ed. 1750: Histoire de César Germanicus, II. against the Lords Appellant; 1761; and La République Romaine, Thomas (d. 1426), Duke of Exeter, 1766.

Beaufort, Margaret, Richmond and Derby (1443-1509), was the daughter of John, Duke of Somerset (see BEAUFORT, family), and married, in 1455, Edmund Tudor, Earl of Richmond, by whom she was mother of Henry, Earl of Richmond, afterwards Henry VII., whose title to the throne came to him through his mother as descendant of John of After her husband's death Gaunt. she married Henry, son of the Duke of Buckingham, and Thomas Stanley, Earl of Derby. She founded the Lady Margaret professorships of divinity at Oxford founded by College at Memoirs of

Richmond aBeaufort Testimonial was the result of a subscription raised in 1860 to commemorate the good services of Sir Francis Beaufort (1774-1857), rear-admiral to the British navy. It took the form of an annual prize awarded to a young naval officer of the Royal Naval College who, as a candidate for the rank of lieutenant, passed most successfully his examina-tion in navigation and kindred subiects.

Beaufort West, a tn., cap. of B. W. div., Cape prov., S. Africa, 339 m. N.E. of Cape Town on the line to Kimberley. It lies 2792 ft. high, on the S. slopes of the Nieuwveld Mts., and is the largest tn. in this part of the Great Karroo. Pop. (div.) 10,762,

(tn.) 5500.

Beaugency, a tn. of France in the Loiret dept., situated on the r. b. of the Loire, which here is spanned by a bridge of twenty-six arches. It is about 16 m. S.W. from Orleans. The manufs. are woollens and leather, and a trade is carried on in grain, wheat, and wine. There are also flour mills and distilleries. Pop. 3600.

Beauharnais, Alexandre, Vicomte de (1760-94), Fr. general, born in Martinique, was descended from an anct. noble family in Orléannois. In 1779 he married Josephine Tascher de la Pagerie, afterwards the first wife of Napoleon, by whom he had Eugène de B. (q.v.), and Horteuse, wife of Louis Bonaparte, King of Holland, and mother of Napoleon III. Alexandre B. served in the American War of Independence, came to France war of Interpendence, came to France and joined the revolutionary party. He was secretary to the assembly, and commanded the army of the Rhine, 1793; his poliure to relieve the slege of Mayence, and the suspicion attached to his noble birth, brought on him the enmity of the Committee of Public Safety, and he was tried and guillotined tined.

Beauharnais, Eugène de (1780-1824),

Countess of son of Viscount Alexandre B.; at his father's death his mother, Josephine, married Napoleon Bonaparte, who treated her children, Eugène and Hortense, as if they had been his own. Eugène accompanied Bonaparte to Italy and Egypt, and was made a prince of the empire, and appointed viceroy of the (so-called) kingdom of Italy; he married, in 1806, the daughter of the King of Bayaria. After suffering defeats from the Russians and Austrians, he retired with his family to Bavaria.

Beauharnois, a co. of S.W. Quebec. The St. Lawrence forms its N. boundary. Its area is 250 sq. m., and it is drained by the R. Chateauguay.

chief th. is of the same name, and its pop. 14,757.

Beaujeu, a Fr. tn. in the Rhone dept., about 27 m. from Lyons.

Beaujolais, a dist. forming part of Rhône and Loire, specially famous for its manufacture of burgundy.

Beaulieu, a Fr. winter resort in the Alpes-Maritimes, 4 m. from Nice. It possesses a good harbour. Pop. 1460. Beaulieu, a parish of S. Hamp-

shire, England. It is situated on the estuary of the river Beaulieu, about 5 m. from Southampton and 6 m. from Lymington. It has an abbey, now in ruins, founded by King John, which sheltered Margaret of Anjou after the battle of Barnet.

tn., the 10

the remains of the Cistercian priory of St. John, 1230, and the site of Lovat Castle. Pop. 855.

Beaumarchais, Pierre Auguste Caron de (1732-99), born at Paris, son of a watchmaker; he was brought up as a watchmaker, and also showed great skill in music, playing the harp and guitar. His great Proficiency attracted the notice of the daughter of Louis XV., and he was admitted to court. His fame as a writer rests on his plays, and principally on Le Barbier de Seville and Le Mariage de Figaro, on both of which operas have been written. The character of Figaro was a happy invention, and his characters are always drawn with great skill. See Le Barbier de Seville

in Les Classiques Français.

Beaumaris, a Welsh parish, port, and mrkt. tn., also the cap. of Anglesey. It is situated on B. Bay, to the The harbour is N. of Menai Strait. easily reached, safe, and roomy. The tn. is frequented by summer visitors, who are attracted by the golf links and the excellent sea bathing. There are slate quarries in the neighbour-hood. The castle was founded by Edward I. in 1295. Pop. 2500.

Beaumes-de-Venise, a tn. of Vau- always connected cluse, France. It has mineral resources, cultivates the vine and mulberry, and contains an old Roman

church. Pop. 1500.

Beaumont, a banking city and co. scat of Jefferson co., Texas, on the Neches R. and sev. railways such as the Texas and New Orleans. shops, and car-works, and is noted for

its oil deposits. Pop. 15,000.

Beaumont, a tn. of Belgium in the prov. of Hainault, about 15 m. from Charleroi. There are marble quarries

and iron-works in the district.

Beaumont, a small French tn. in

Puy-de-Dôme, situated at a distance of 2 m. from Clermont-Ferrand, the cap. of the dept. Pop. 1300.

Beaumont, Eon de, Charles Geneviève Louise Auguste André Timothée (1728-1810), was a famous Fr. diplomatist Scannick Fr. diplomatist Scannick Fr. diplomatist Scannick Fr. diplomatist matist. See under EON DE BEAUMONT.

Beaumont, Francis (1584-1616), Eng. poet, third son of Francis B., a judge of the Court of Common Pleas, b. at the family seat of Grace Dieu, in Leicester. He entered, at the age of ten, Broadgate's Hall (now known as Pembroke College), Oxford; but his



FRANCIS BEAUMONT

Their friendship was remarkably close, and they lived together until B., in 1613, married Ursula, daughter of Henry Isley, of Sundridge in Kent, by whom he had two daughters. He was buried in Westminster Abbey. The masterpieces of B. and Fletcher are Philaster and The Maid's Tragedy. Fletcher exports lumber, rice, thingles, and is generally regarded as having con-live stock, has a foundry, machine-tributed the vivacity and B. the ributed the vivacity and B. the judgment, the latter's duty being often to correct the overflowings of Fletcher's wit; they had a 'wonderful consimility of phansy' (Aubrey).

The purest characters in their plays

are not free from an admixture of coarseness, while chastity is overwrought and put to absurd and gratuitous trials, so that some of the freshest and loveliest passages are found side by side with fantastic

affectations.

B.'s only certain single play is The Masque. B. and Fletcher produced Four Plays in One, 1608; King and no King, 1611; Cupid's Revenge. 1611 (3); Knight of the Burning Pestle, 1611; Maid's Tragedy, 1611; Philaster, 1611; Coxcomb, 1612-13: Wits at Several Weapons, 1614; Scorn-Theodoret, 1616; possibly Thierry and Theodoret, 1616; and Little French. Lawyer, 1620. B. may have cooperated with Massinger in Laws of Candy.

Eds. of B. and Fletcher: Bullen, 11 vols. 1904; Glover and Waller. 15 vols. 1909; Dyce, 11 vols. 1843-6. Life of Beaumont, by G. C. Macaulay. 1883. See E. Rhys, Lyric Poems of Beaumont and Fletcher, 1897. See

FLETCHER, JOHN.

Beaumont, Sir George Howland, the seventh baronet of the ancient family of the B.'s of Stoughton Grange, Leicestershire, was b. in 1753, and educated at Eton. He was a distinguished amateur of the arts and friend of artists, possessed him-self considerable skill as a landscape painter, and was one of the most munificent donors to the Brandinal collection of pictures. British died in February, 1827, without issue.

Beaumont, Jean Baptiste Elie de (1798-1874), French geologist, born at Canon, studied with great distinction at the Lycée Henri IV., the father died in 1598, and he left without des Mines. He went with the protaking a degree. He became a student at the Temple, 1600; as his life was liers and Dufrénoy to England with a short and his writings numerous, it is view to preparing a geological map of reasonable to suppose that he paid France after the publication of Gree-little attention to law. He records in a poetical epistle his intimacy with later seen in the map pub. by him and later seen in the map pub. by him and the property of t Ben Jonson and other men of literary Dufrénoy, 1840, his greatest service pursuits, who frequented the Mer-to geology. In 1835 he succeeded maid Tavern; here probably he met Brochant de Villiers in the chair of John Fletcher, with whomihis name is geology, and was engineer in chief, 1833, and inspector general of mines, 1847. He was perpetual secretary of the Academy of Sciences, 1853, in succession to Arago. His theory of the origin of mt. ranges, Notice sur les système des Monlagnes, 1853, is not now accepted, but it was of great value from the detailed researches he made in its preparation.

Beaumont, Sir John (1583–1627), English poet. He was born in Leicestershire, an elder brother of Francis B., and educated at Oxford, which he entered in 1596. He was knighted in 1603. His patron was the Duke of Buckingham. In religion he was a Puritan. Among his friends, not the least intimate was Michael Drayton. He was buried at Westminster Abbey. See Weyle ed. A. R. Gregort 11869.

See IVorks, ed. A. B. Grosart, 1869.
Beaumont, Joseph (1616-99), Eng.
poet. He was b. at Hadleigh, Suffolk,
and was educated at the local grammar school, where he showed an exceptional facility for acquiring knowledge. He subsequently entered
Cambridge. His poems include an
epic Psyche, and a number of minor
pieces. As an artist B, had a small
reputation.

Beaumontague, the name given to a composition of iron filings, pitch, salammoniac, and other materials employed to fill up flaws in casting; also applied to putty-fillings in defective joinery.

Beaumont-de-Lomagne, a Fr. town in the dept. of Tarn-et-Garonne, about

22 m. from Montauban.

Beaumont-le-Roger, an anct. French tn. in the dept. of Eure. It is of great historic interest, and contains a parish church with magnificent windows. Pop. about 2000.

Beaumont-sur-Oise, a tn. of France in the dept. of Seine-et-Oise, on the Oise, about 18 m. from Paris. It has a trade in grain, cattle, and cheese. Pop. 4000.

Beaumont-sur-Sarthe, a tn. of France in the dept. of Sarthe, on the river of the same name, and about 15 m. S. of Alencon: pop. 2000.

15 m. S. of Alencon; pop. 2000.
Beaune, a town in the E. of France, in the dept. Côte d'Or. Its manufs. are white metal, oil, vinegar, and casks. It is the centre of the burgundy wine trade. Pop. 11,000.
Beaune, Florimond de (1601-52), Fr.

Beaune, Florimond de (1601-52), Fr. geometer and friend of Descartes, was born at Blois. He commentated on Descartes' geometry, is noted for his problem on curves, and invented sev. astronomical instruments.

Beaune-la-Rollande, a French tn. in the dept. of Loiret. It is of great antiquity, was devastated by the English in the middle ages, and its church was rebuilt by Charles VII. Here the French, under D'Aurelles

Germans, Nov. 28, 1870. Pop. about 2000.

Beaupréau, a Fr. town in the dept. Maine-et-Loire, situated on the Evre,

about 28 m. from Nantes.

Beauregard, Pierre Gustave Toutant (1818 - 93), American confederategeneral, born at New Orleans, gradu-ated at W. Point, 1838, and gained promotion in the Mexican War by distinguished service at Vera Cruz, the battles round Mexico and Chapultepec, where he was wounded. civil war broke out almost immediately after his appointment to the head of W. Point. At the first battle At the first battle of Bull Run he was second to General Joseph Johnston. Appointed full general, Aug., 1861, he commanded the confederate army at Shiloh, 1862, after A. S. Johnston's death in the battle and withdrew to Corinth, which position he defended against Halleck for a month. From Sept. 1862 till May 1864 he defended Charleston and then defeated Butler at Drury's Bluff. He surrendered with Johnston after the campaign against Sherman in 1865. After the war he refused commands offered him in foreign armies. See A. Roman, Military Operations of General Beauregard, 1883.

Beauregard-l'Evêque, a French com. in Puy-de-Dôme, is noted for an ancient building erected by the bishops of Clermont as a house of

recreation. Pop. about 1200.

Beaurepaire, a French vil. on the

Suzon and Auron rivs., 18 m. from Vienne. Silk-throwing is carried on, and there are tanyards and cutlery works. Pop. 3000.

Beau Seant, or Bauceant, a banner belonging to the Knights Templars in the 13th century. It was an oblong flag with the design in white and black.

Beausobre, Isaac (1659 – 1738), learned Fr. Protestant divine, studied at Samur, and expelled by Louis XIV. for preaching; went to Holland and Germany, where he was a great favourite with Frederic William I.; he lived at Berlin forty-six years. He wrote critical and historical work on the N.T., and his sermons were read long after his death.

Beausset, a Fr. vil. in the dist. of Var, 11 m. from Toulon. Earthenware is manufactured and there is a trade in oil, wine, and corn. Pop.

2200.

Beauty, that quality in visible objects in consequence of which their colours and forms are agreeable to the human mind. Though thus at first appl sight

the

de Paladine, were conquered by the the other senses, e.g. the hearing. By

beautiful has become merely a vague term of praise, synonymous with admirable, e.g. beautiful language, a beautiful metaphor, etc. See Æs-THETICS.

Beauvais, a tn. in N. France, and the cap. of the dept. Oise. It is situated at the junction of the Avelon and Thérain, in a beautiful valley. It is an anct. place, having been known to the Romans, who called it Casaromagus. Its cathedral, begun in 1247, is famous, and the stained-glass windows from the 13th to the 16th centuries are specially noted. Themanufs. are tapestry, carpets, gold and silver lace, brushes, etc. Pop. 17,000.

Beauvoisis, or Beauvaisis, an old dist. of France, was formerly com-

prised in the government of Picardy, then of l'Ile-de-France. It now forms part of the arrondissement of Beauvais in the department of Oise.

Beaver, or Castor, is the name applied to a genus of rodents of the applied to a genus of rodents of the family Castorida. There are only two species, *C. fiber* and *C. canadensis*; the former is a native of Europe, and the latter of N. America. They are related to squirrels and prairie-dogs, and are noted for their great intelli-



gence, their skill in building houses and dams, their glossy fur, and glands which secrete castoreum, used in medicine. In length they are about 1 to 2 ft., while the broad, flat tail is about another foot long: their feet are webbed. Their food consists of the bark of trees and occasionally they They live usually in large communities in burrows or lodges near the banks of a stream, for in habit they are aquatic. Bs. are of interest chiefly on account of their architectural ingenuity. To obtain wood, both for building and for food, they gnaw round the bases of trees until they fall, when they float them down stream to their houses. When the wood near home is exhausted they

a further extension, the adjective with water. The European Bs. seldom construct dams, but C. canadensis by its construction does much damage. its construction does much camage. Their houses, or lodges, are built on the banks of streams or on small islands, and are made of twigs, moss, and grass plastered together with mud, and the entrance passage is often protected by piles of sticks. The B. is frequently hunted on account of its fur, the fatty castoreum, and its flesh especially that of the tail-and is consequently in danger of total ex-termination. See H. T. Martin's Castorologia, 1892.

Beaver, Sir Philip (1766-1813), Eng. naval captain. At the age of eleven he accompanied Captain Joshua Row lev in the Monarch. He joined a scheme of colonisation in Bulama Is .. near Sierra Leone, but the venture proved disastrous. He took part in the bombardments of Genoa in 1800.

Beaver Dam, a tn., Dodge co., Wisconsin, U.S.A. It is situated on B. Lake, 65 m. W. of Milwaukee. Its manus. are wool, cotton, metal goods.

manus. are wool, cotton, metal goods. Wayland Academy is a Baptist college in the town. Pop. 5615.

Beaver Falls, a tn., B. co., Pennsylvania, U.S.A.; it lies 32 m. N.W. of Pittsburg on a plateau above the B. riv. It has a large manus. of iron and steel goods of all descriptions. The Presbytcrian 'Geneva' College in now at College Hill Jean by Ber is now at College Hill close by. Pop. 10,246.

Beaver Rat, the name given in Australia to the native water-rat of the genus Hydromys, family Muridæ, and order Rodentia. These small mammals are related to voles, hamsters, and lemmings.

Beaver Tree, sweet-bay, or swamplaurel, the Magnolia glauca, growing in swampy ground from Massa-chusetts to Florida. It has evergreen leaves and round fragrant white flowers.

Beawar, a tn. of British India. It is situated 30 m. from Ajmere, and is a centre of the raw cotton trade. Pop. 21,928.

Beazley, Charles Raymond, Eng. geographer and historiographer, was born at Blackheath, April 3, 1868. He was educated at London and Oxford, being made a fellow of College in 1889. Of his numerous publications the following may be named: James of Aragon, 1890; Dawn of Modern Geography (3 vols.), 1897, 1901, 1906; John and Sebastian Cabot, 1898: Voyages of Elizabethan Seamen, 1907.

Bebeerine, or Bibirine, an extract of construct canals and dams so that the bark of the greenheart, Nectandra they may bring into their power the rodbiaei, of Guiana, the native name wood beyond their reach at the time, for which is bibiru. Its efficacy as a and in this way whole tracts of land tonic and febrifuge was discovered in are deprived of timber and covered 1835 by a doctor in Demerara, Hugh Rodie, and its properties chemically analysed by Sir D. Maclagan, 1841. The expectation that it would form a substitute for quinine has not been fulfilled.

Bebek, a bay and small tn., on the W. shore of the Bosphorus, some 6 m. from Constantinople. An 18th century palace of the sultan's overlooks

the beautiful bay.

Bebel, Ferdinand August, German socialist and leader of the Social Democratic Party, was b. at Cologne, 1840. He worked as a turner at Leipzig, joined the Working Men's Assoc., 1863, and became a socialist, In 1867 he was elected to the N. Ger. Reichstag and to the united Ger. Reichstag in 1871, of which he has since remained a member. with Liebknecht opposed the war in 1870, and in 1871, as the only socialist member, the annexation of Alsace. In 1872 he was imprisoned for high treason. With Liebknecht he organised the Social Democratic Party and joined his staff on the Vorwarts, 1890. His great oratorical powers gave him a commanding position in his party, which has survived the attacks of the more violent 'young' socialists on one hand and the 'revisionists' on He has remained leader the other. of the parl, socialists and a confirmed adherent to Marxian principles. His chief publications are Unsere Ziele, Die Bauernkrieg, Christentum u. Socialismus, and his attack on bourgeios marriage, Die Frauu. der Socialismus;

and an Autobiography (1912).

Bebre, a Fr. riv. which rises in the dept. of Loire, and drains the S.E. of the dept. of Allier. After a course of

47 m. it enters the R. Loire.

Bec, Abbey of, a Benedictine abbey, of which only the ruins remain, near Bernay, Normandy. It was founded Herlwin or Herlewin in 1034. Under Lanfranc as prior and Anselm, prior and abbot, it became the centre

of learning in Europe.

Beccafumi, Domenico, a celebrated painter of Siena. According to Vasari he was born at Siena in 1484, and died

there in 1649. His real name was Mecherino; that of B, he derived from his patron Lorenzo B. He painted in distemper, and in oil; better in the former style, and his small figures are superior to his larger ones. His best

works are in Siena.

Beccaria, Cesare Bonesana, Marquis of (1735-93), an Italian writer on moral and political philosophy; a student and in a manner imitator of Montesquieu; pub. a work on the monetary abuses in Milan; he edited a paper, Il Caffé, after the manner of the Spectator. His best known work was Crimes and Punishments, a work singularly in advance of his time, but so far in advance that while he raised at the time a furore in Europe, he is now, like Jeremy Bentham, not read at all. In 1768 the Austrian gov. founded a chair of political philo-sophy for him at Milan. He died of apoplexy

Beccaria, Giovanni Battista (1716-S1), It. electrician, born at Mondovi; \$1), It electrician, vorn at anomaly, studied theology at Rome, and was professor of philosophy at Palermo. In 1748 the King of Sardinia appointed him to the chair of natural philosophy at Turin. He pub. various works on electricity; elected a fellow of the Royal Society, London, 1755.

Becales a punicipal borough and

Beccles, a municipal borough and mrkt. tn. in Suffolk, England. It is situated on the r. b. of the Waveney, which riv. is navigable to Yarmouth. The tn. is 110 m. from London. There are brickyards, malting works, and manufactures of earthenware. Pop.

7000. Becerra, Gaspar (1520-70), Spanish painter and sculptor. He was a native of Baéza in Andalusia. He studied, it is reputed, under Michelangelo in Rome. Philip II, had many of the rooms of his Madrid palace painted by him. Of his sculpture the finest example of his work was 'The Virgin,'

which has been destroyed.

Bec-lin, the Fr. name for various warblers of the family Turdide. It includes such thin-billed birds as the

stone-chat and hedge-sparrow. Beche, Sir Henry Thomas de la (1796-1855), geologist. He was born in London and educated at a Devonshire grammar school. He entered military service, which ceased at the peace of 1815. Henceforth he devoted himself to the study of geology. He attained a great reputation by his geological map of England, in which he was assisted by the gov. He be-came president of the Geological

Society in 1847. Beche de Mer, often known by the Malay name trepang, or as ' sea-slug or 'sea-cucumber,' a species of Holothurian echinoderms, about 5-12 in. long, either with smooth or warty They are found chiefly off the coasts of the Eastern Archipelago and New Guinea and Queensland. boiled and then dried in the sun and smoked, they form a chief part of the Chinese gelatinous soups, and are

considered a large trad

Becher, Ger. chemist and physician, born at Spires, became professor of medicine at Mainz; his *Physica Subterranea*, 1669, contain his experiments on various substances; Stahl's *Doctrine* of Phlogiston is indebted to him (ed. 1703). He died in London.

Bechstein, Johann Matthäus (1757-

1822), German naturalist, was born Kuruman, Robert Moffat's at Waltershausen in Saxe-Coburg- quarters from 1821. Livings Gotha, and educated at Jena University. He devoted himself to the study of sylviculture with great enthusiasm. established a school of forestry in his native place in 1795, and was chosen director of the Academy of Forestry at Dreissigacker by the Duke of Saxe-Meiningen in 1800. His Naturges-chichte der Stubenvogel (1840) has been translated into English, and passed through several editions. See L. Bechstein's Dr. J. M. Bechstein und die Ferstagedemie Dreiseigneber 1855 2 K .

forte-He w

which still bears his name, and whose instruments are famous for depth of tone.

tone.

Bechuanaland, geographically, occupies that portion of the central plateau of S. Africa between the Orange R. on the S., the Zambesi and Rhodesia N., the Transval E., and Ger. S.W. Africa W. Politically it is divided into British B., incorporated, 1895, with Cape Colony, area 51,424 sq. m.; pop. 84,210 natives, 9276 whites; and the B. Protectorate, area 275,000 sq. m., pop. 125,330 natives, 1692 whites, governed as a British Crown Colony by the High Commissioner represented by a resident commissioner. Its by a resident commissioner. Its customs revenue is collected by the S. African Customs Union. The excess of expenditure, now decreasing, over revenue, derived principally from a hut-tax, is covered by an annual imperial grant. A portion of Matabeland, the Tati concession, is attached to the Protectorate.

The western portion of B. is occupied principally by the Kalahari desert, where big game still abounds; the E. is veldt-land, affording pasture for the cattle, the chief wealth of the natives, though millet and maize and some wheat is grown. The climate is good except in the marshy dists. round Lake Ngami in the Okavango basin, N.W., and in the Makarikari salt marshes, N.E.; the rainfall ranges from 10 in. W. to 26 in. E.; the soil is fertile but needs irrigation. Gold is found in the Tati concession and near Mafeking, and diamonds near Vryburg. Mafeking, in British B., is the headquarters of the Protectorate administration. The prin. tribes are the Barrangwate (25 000) Khama's people, the N.E portion of chief tn. Serowe, removed from Palapye, 1903;

Bakwena (13,000), Bakathla (11,000), Bangwaketsi (18,000).

History.—Exploration began at the end of 18th century; in 1818 the

head-Livingstone's systematic explorations commenced in 1841. After the Sand River Con-vention, 1852, the Boers began to encroach from the E. The appeals from the native chiefs, notably the Christian and enlightened Khama, during the seventies, led to a temporary British occupation. After the first Transvaal war, the Boers set up the republics of Stellaland (at Vryburg) and Goshen in the N., which they retained contrary to the London Convention, 1884. Sir Charles Warren's expedition, 1884, finally brought B. under British rule. The present administrative division dates from 1895. See G. W. Stow, Native Races of S. Africa, 1905; Livingstone, Missionary Travels in S. Africa, 1867; Moffat, Missionary Labours in S. Africa, 1842; J. D. Hepburn, Twenty Years in Khama's Country, 1895; British Africa, 1899; article by Sir S. Shippard, and Bechuanaland Report, Colonial Office.

Beck Case. The trial of Adolf Beck in April 1904 led to a very serious miscarriage of justice. Identified by several women and an ex-policeman as a certain man named Smith, who had previously been imprisoned for fraudulency, he was convicted of attempting to defraud these women again. While undergoing penal servitude he discovered that Smith was a Jew, and by personal marks he was at length able to prove his innocence. After scandalous delay he was par-doned and offered a sum of money as compensation for his imprisonment. Smith was arrested, and Beck died in poverty in 1909. See J. Kempster's Perversion of Justice as exhibited in the Beck Case, 1905.

Becke, George Louis, a novelist, b. in 1848 at Port Macquarie, New South Wales. His chief works are: By Reef and Palm, 1894; The Ebbing of the Tide, 1896; His Native Wife, 1896; Wild Life in Southern Seas, 1897; Rodman the Boatsteerer, 1899; Tom Wallis, 1900; Edward Barry, By Rock and Pool, Yorke the Adventurer, 1901; Breachley, Black Sheep, 1902; Helen Adair, 1903; Tom Gerrard, 1904; Notes from my South Sea Log, 1905; Sketches from Normandy, 1906. He has also written the following works in collaboration with Walter Jeffery; A First Fleet Family. Wales. His chief works are: By Reef Walter Jeffery: A First Fleet Family, 1896; Pacific Tales, 1897; Naval Pioneers of Australia, 1899; Admiral Phillip, 1899, and The Tapu of Banderah, 1901.

Beckenham, a tn., Kent, England. It is a residential district for London, History.—Exploration began at stretching from the Crystal Palace to the end of 18th century; in 1818 the Bromley. Shortlands is in the parish. London Missionary Society settled at Pop. 26,331.

it is said, of

Becker, Ferdinand Wilhelm (1805-1 34), b. at Höxter on the Weser, where his father, Karl Ferdinand B., a distinguished philologist, practised as a physician. Educated at Göttingen, and in 1820 came to Scotland, where he was appointed assistant librarian in the Advocates' Library (q.v.). He moved about from Scotland to Germany, co-operating with Dr. John Thomson, the professor of pathology: he was appointed by the Russian gov. to make inquiries concerning efficacy of vaccination; he died sud-His works include sev. Lat. treatises on medical subjects, and a pamphlet on Cholera, pub. in London. He wrote for many periodicals in France, Germany, and England, and did sev. articles for the famous Penny Encuclopædia.

Becker, Karl Ferdinand (1775-1849), Ger. philologist, born near Tricr, estab, a school at Offenbach, 1823. His principal work, Ausfuhrliche Deutsche Grammatik, 1836, was long popular.

Becker, Lydia Ernestine (1827-90), an advocate of women's suffrage. She was appointed secretary to the Manchester Women's Suffrage Committee, 1867, and she continued to serve as secretary when this committee was merged in the Manchester National Society for Women in 1868. She also edited the Women's Suffrage Journal, 1870-90.

Becker, Wilhelm Adolf (1796-1846),

classical archæologist, born at Dresden, studied under Beck and Hermann at Leipzig University, and became programmer at Leipzig University, and became programmer last 2. I and buch de last 3. and Mommen, but his most popular books are the scenes of Rom and Gk life in

Mommsen, but his mostpopular books are the scenes of Rom. and Gk. life, in the form of romances, Gallus, 1838 (new ed. 1880), and Charicles, 1840, (new ed. 1877), both have been trans, into Eng. He died at Meissen.

Beckerath, Hermann von (1801-70), Prussian statesman, born at Crefeld; gained great wealth from the bank which he founded, 1838; was a member of the Frankfort Parliament, 1848, and made finance minister. He was a leader of the movement for national unity under Prussian leader-

ship. See *Life* by Kopstadt, 1874.

Beeket, Thomas, chancellor of England and archbishop of Canterbury.

He was born of Norman parents, his father, Gilbert Beeket, being a well-to-do London merchant. Various stories have been related with regard to the person of his mother, the story most generally accepted being that she was a Saracen maid who followed her lover from his prison to the streets of London. There is, however, no historical basis for this story. He re-

ceived his education at Merton Priory and in London, being also given a long course in knightly exercises and later being sent to Paris to study theology. He was attached to the court of Theobald, archbishop of Canterbury, and between the years 1148-53 he received a fairly useful training in the archbishop's court at the court of King Stephen. In 1152 the pope ordered Theobald to refuse the crown having been

recognised as one of the leaders of Englishmen, and on the accession of Henry II. his promotion was expected and looked for. By the archbishop he had already been promoted and offices had been heaped upon him, and a year after the accession of Henry II. (1155) he was appointed to the chancellorship. His appointment was popular and was

receive an appointment of this description since the Conquest. He was extravagantly magnificent during his period of office, and was far more regal in his manner of living than was the king himself. He was the head of an embassy to the Fr. court. he suggested a means of gaining the Norman Vexin, and he took an active and knightly part in the Toulouse campaign. All these things make it difficult to understand the complete change which came over him in 1162. when he was created archbishop of Canterbury. He changed his manner of living to that of an ascetic; he determined to support and claim full privilege for the church; and he became the zealous champion of the church against the king. Henry II. was anxious to break the power of the church, and especially to reduce the benefit of the clergy. By the Con-stitutions of Clarendon he attempted to do this, and although B. at first refused to consent to them, ultimately he gave a grudging consent. But B. and the king had shown too openly their antagonism, and from this time onwards they became open enemics. B. fled the country, his property was seized and the revenues of his sees were impounded. A claim was made

y a wellthen went to Rome, where he was reinstated by the pope to his archbishopric. In 1170 a reconciliation was patched up between himself and the king, and he returned to England. He received a magnificent reception from the people, but quarrels soon roke out again. The coronation of the young King Henry during B.'s absence led him to excommunicate principal work was the History of the bishops who had taken part in it. Invention. He wrote A History of the news of this aroused the Angevin the Earliest Voyages made in Modern Tury of Henry II., and he burst forth with the words that led to the murder with the words that led to the murder of B. in Canterbury Catherral by four general of the Jesuits, was born at the larger length to the marker with the words that the marker with the words of the larger length.

took place on Dec. 29, 1170. B. was canonised in 1172.

Beckford, William (1760-1844), author of Vallek, the son of William Beckford (1709-70), Lord Mayor of London and supporter of Wilkes, was born at Fonthill Abbey, Wilts, was born at Fonthill Abbey, Wilts, was born at Fonthill Abbey, Wilts, the inherited a great fortune on his father's death. In 1783 he married Lady Margaret Gordon, daughter of the fourth Earl of Aboyne. B. had travelled already much on the continent, meeting Voltaire in 1777, and making the Grand Tour. After his wife's death in 1786 he went to Portugal. He was M.P. for Wells from 1784 to 1790, when he resigned, and for Hindon 1806. In 1801 he sold the contents of Fonthill, and began the building of a new heavent property of Anhalt-Köthen, and procurator for the prov. of Austria in 1847. Six years later he was made general of his order, and as such greatly influenced Pope Pius IX. He took a prominent part in the discussions which were reining the Immaculate Conception and papal intallibility.

Prussia, 23 m. S.E. of Münster; pop. about 7000.

Beckford, William (1760-1844), and became of Anhalt-Köthen, and procurator for the prov. of Austria in 1847. Six years later he was made general of his order, and as such preatile in the discussions which were reining the Conception and papal intallibility.

Prussia, 23 m. S.E. of Münster; pop. about 7000.

British general and missionary, born in Nova Scotia, was a nephew of General Sir Thomas B. (1772-1831), who gained distinction in the Light Division during the Peninsulaw Wan contents of Fonthill, and began the building of a new house at a cost of nearly £300,000. His eccentric habits of seclusion here gave rise to various stories. In 1822 he sold Fonthill to Mr. John Farquhar, who sold his collection of pictures and art treasures; three years later the tower (260 ft. high) collapsed and destroyed part of the house. B. built another tower near Bath, where he lived till his death. The Oriental romance for which he is chiefly remembered, The History of the Caliph Vathek, was pub. in Fr. 1782, translated into English, 1786, and, as B. was wont pub. In 1834, and in the same year at the reign of Edward VI. he prospered, reissue of his satirical Biographical only, however, to be sent to the Mcmoirs of Extraordinary Painters, Tower on the death of the king. His originally written in 1780. See C. release ultimately followed, with renett's ed. of Valhek, 1893; and L. Melville, Life and Letters. 1910

Beckman, Sir Martin, Eng. artist. He lived about 1656. solely as an amateur. He painted

Beckmann, Johan (1739 - 1811), author and professor, born at Hoya in Hanovan and in Hanover, and educated at the Göttingen University. In 1762, he became a professor of natural history at the Lutheran Academy at St. Petersburg. In 1766 he received an appointment as professor at Göttingen, where he gave lectures on political and domestic economy. In 1772 he was a member of the Royal

of the king's knights. The murder Sichem, in Brabant, and died at took place on Dec. 29, 1170. B. was Rome. He became confessor to the

Division during the Peninsular War. John served in the Light Division during that war, and lost a leg at Waterloo. In 1827 the condition of the Waldensians in Piedmont turned him to missionary work. He settled at La Torre. He founded 120 schools and built a church and reintroduced Italian into their services. He died at La Torre.

Becman, John Christopher (1641-1717), Ger. historian and geographer, He died at was born in Anhalt.

Frankfort.
Becon, Thomas, D.D. (1512-67),
Cranmer: no chaplain to Archbishop Cranmer: no to assert, was written at a single knowledge of his education at school sitting of three days and two exists, though it is certain that he nights. This is cited by Borrow in graduated as B.A. at the age of sixwrote the Adventures of Joseph Sell His religious opinions caused his sumin about as many days (see appenmons to London, there to recaut them
dix Romany Rye), but we may believe
neither. His Portuguese Letters were they had been proclaimed. During
pub. in 1834, and in the same year a the reign of Edward VI. he prospered,

Becque, Henri François (1837-99), Fr. dramatist, born in Paris. Was for some time a banker, and served on the editorial staff of sev. papers. His plays, which met with varying success, include the opera Sardanapale, 1867; Michel Pauper, 1870; L'enlèvement, 1871; and Parisienne, 1885.

Bécquer, Gustavo Adolfo (1836-70). a Spanish poet and man of letters, the son of an artist, Joaquin B. In 1856 he went penniless to Madrid, and earned a scanty living on translations and miscellaneous journalistic work. Society of Göttingen until 1783. His He wrote three vols. of poems and obviously imbued with the romantic spirit that so strongly influenced Byron and Heine; his prose legends are weird and somewhat morbid. See his Obras, ed. by Correa, with a biographical introduction (Madrid, 1885; 5th edition, 1898).

Becquerel, Antoine César (1788-1878), Fr. physicist, born at Châtillonsur - Loing: served with the Engineers in Spain, 1810; he was appointed to the Ecole Polytechnique and served in France in 1814. He then left the army and began to study with Ampère and Biot magnetism, electro-conductivity, and more particularly electro-chemistry. In 1837 he became professor of physics at the Musée d'Histoire Naturelle. The value of his researches in electrical science was recognised by the Royal Society with the Copley medal, 1837, and he may be regarded as one of the pioneers in the study of electro-He made valuable obchemistry. servations in meteorology and in animal heat and the growth of plants. Of his numerous scientific publica-tions the chief are Traité d'électricité (°0; Eléments de

Traité complet Eléments de

physique terrestre et de météorologie. 1847.

Becquerel Rays are so called because they were the discovery Antoine Henri B. (born in Paris, 1852), grandson of Antoine César B. (supra) who first recognised the property of radioactivity in uranium.

Becse, or O Becse, a tn. of Hun-

gary, situated on the r. b. of the Theiss; has a large trade in grain;

pop. 19,000.

Becskerek, or Nagybecskerek, a tn., Torontal co., Temesvar Banate, Hun-It is an important centre of trade in cattle and wheat, and is on the Bega R. and Bega Canal, by which it is joined to Temesvar, 45 m. distant. Pop. 26,000.

Bective Abbey, which is 5 m. from Trim in Ireland, was an ancient building situated on the R. Boyne. In later times a church was erected on the site of the ruined abbey, and the steeple of the church still

remains Bed. Primitive man made his bed upon the floor of a cave or hut of skins, of leaves, of ferns, of dried grass or straw, and so does his fellow, the savage of to-day. Eastern nations still pile their sleeping mats and rugs on the floor for night, and remove them in the day. The bed of the O.T. and N.T. can be seen to-day in

prose legends. In the former he was a transition towards the bedstead, The material of the bedding, straw, wool, or feathers, has not varied much since early times; hair was used in the middle ages. The coverings have always been the object of lavish display in material and decoration. Pillows and bolsters were used in anct. Greece and Rome. The curved head-rest of wood or more costly material is found in anct. Egypt, and to-day in Japan, in Africa, and the Pacific. In modern times flock, wool, horsehair are used for the stuffing of bedding; feathers, still used for pillows, have ceased to be a luxury for the bed; the spring mattress has given place to the coiled wirewoven net, fixed in the framework, a development of the crossed plats of iron or webbing descended from the hide thongs of anct. times which supported the bedding. The 'bedstead' proper in Egypt was a low framework of wood, on which was stretched a webbing of rushwork or fibre; more lofty beds, with steps, were The carly used for persons of rank. Gk. bed had a head-board, and laced thongs of hide bore its pile of skins or other coverings. Oriental influence brought carving and inlay of metal and ivory, which the Romans copied. At Pompeii have been found the carved bronze posts and head-rests of beds which once supported a narrow frame of wood; such were probably placed in an alcove and sheltered by curtains. In the early middle ages the bedstead, where used, appears to have been a box-like construction, but there are illustrations in MSS. of beds with carved and decorated headand foot-boards; others are more couches or benches placed against the wall with curtains hung from a side A feature of 12th and 13th cornice. century beds is their slope from head to foot. In the 14th century is found the 'tester,' with canopy and side curtains usually hung from a wall-projection at the head. It must be remembered that bedsteads were luxuries for the well-to-do, and that the common folk slept, as did their ancestors, on rushes. skins, or straw upon the floor. Till the end of the 15th and beginning of the 16th century most of the decoration seems to have been lavished on the bed-trappings, which a great personage carried with him, to furnish the light frame-works of the permanent bedsteads. With the 16th century comes the great four-post bed, with its opportunity for the craft of the wood carver. Many fine examples of Elizabethan and Jacobean beds of this the E. In India the string bed type still exist. An historic example stretched on a low framework of is the great bed of Ware, once at the wood, the 'charpoy,' seems to mark Saracen's Head, now at Rye House.

the canopy and side curtains rest on civil staff, and from 1857 had a large and the 18th century in France pro- logical History of Europe; and Colour duced the most ornate and beauti- and Race. examples. Chippendale and t ·ful Sheraton designed fine mahogany tinguished physician, born at Shifnal, bedsteads, and the present day has in Shropshire. Entered at Pembroke

Beda, sec BEDE.

Bedaricux, a tn. of S. France, in the dept. of Hérault. There are manufs. of wool and cloth, and also tanneries and distilleries. Pop. 5500.

Bedchamber Question, see House-

HOLD, ROYAL.

Bedda, or Beda, Nuts are the product of Terminalia belerica, a species of Combretacee. These tropical seeds are used in medicine, and also in dyeing and tanning. In common with the seeds of sev. other plants they are called myrobalans. Beddard, Frank Evers (b. 1858), an

English naturalist. Prosector to the Zoological Society since 1884; formerly lecturer on biology at Guy's Hospital, and examiner in zoology and comparative anatomy at the university of London, and of morphology at Oxford. He was also naturalist to the Challenger Expedition Commisthe Challenger Expedition Commission, 1882-84. His works are: Animal Coloration, 1892; Text-book of Zoogeography, 1895; A Monograph of the Oligochada, 1895; and Structure and Classification of Birds, 1898.

Bedgelert, i.e. 'the grave of Gelert,' vil., Carnaryonshire, N. Wales, 13 m. S.E. of Carnaryon. It is close to the Pass of Abogralsyn in which is the

Pass of Aberglaslyn, in which is the rock called 'the chair of Rhys Goch,' the bard (d. 1420). From the vil., lying at the foot of Snowdon, the ascent can be made. Pop. 1200. The traditional grave of Llewellyn's hound, Gelert, well-known from W. R. Spencer's verses, is marked by a The legend of the hound who tale of a snake, a greyhound, and a knight (Seven Wise Masters of Rome), and by an Indian tale of an ichneumon and a snake.

With the end of the 17th century a and Edinburgh. He served during return was made to the 'tester,' but the Crimean War as a doctor on the the head-posts of the bed, and the foot-board, carved and curved, remains or is dispensed with. France was before England in the change of Man in British Isles; Anthropo-

Beddoes, Thomas (1760-1808), a disseen a revival of the taste for wooden bedsteads in preference to the iron and brass bedsteads which had come into almost universal use since the middle of the 19th century.

Bed, in geology, is a term used to indicate the layers of certain rocks, usually called strata (q.v.). rebels, and with such publicity that his stay at Oxford was no longer possible. He returned to Shropshire, and wrote the History of Isaac Jenkins, intended to check drunkenness. 1794 he married a Miss Edgeworth, sister of Maria of that ilk, and took great interest in the study of chemistry; he was instrumental in bringing out Humphrey Dayy. He wrote several books on medicine.

Beddoes, Thomas Lovell (1803-19), English poet, born at Clifton, the son of Thomas B. (1760-1808), the physician and inventor of a propunction cian and inventor of a 'pneumatic' system of therapeutics by inhalation of medicated gases. His mother's of medicated gases, sister was Maria E Edgeworth, the novelist. His poetic drama, The Bride's Tragedy, 1822, is modelled on the macabre plays of Webster and Tourneur, and his verse re-echoes that of the Jacobean dramatists. His fantastic and amorphous drama in verse, Death's Jest-Book, or The Fool's Tragedy, was pub. posthumously, 1850, by his friend, T. F. Kelsall, who was his literary executor, and in 1850-51 pub. a memoir of B. and collected eds. of his poems. Many of B,'s lyrical poems are exquisite, as, e.g. 'If thou wilt ease thy heart,' and 'If there were dreams to sell.' From 1824 till his death B. lived a wandering life abroad, chiefly in Germany and Switzerland, but his violent revolutionary views prevented his remaining long in one place. He committed suicide under peculiar circumstances in 1849 at Basel. See E. saved his master's child from a wolf Gosse, Poetical Works of T. L. Bedand was killed in mistake by the does, Temple Library, 1890, with the father is paralleled by the medieval first full account of his life; Letters, tale of a snake, a greyhound, and a 1894; and R. Colles, Muses Library, 1906.

Bede, Beda, or Bæda, surnamed The Venerable (c. 673-735), the great-Beddoe, John (1826–1911), anthropologist and physician, b. at Bewdley, Worcestershire, England, was edu-monstery of St. Peterat Wearmouth. cated at University College, London,

mitted to this monastery, and studied under the famous abbot, Benedict Biscop, and his successor, Ceolfrid. In 682 Benedict Biscop had founded the neighbouring monastery of Jarrow, and it is here that B. generally resided. In his nineteenth year he was admitted to the diaconate by St. John of Beverley, then Bishop of Hexham, and eleven years later the same bishop ordained him priest. At the end of his Ecclesiastical History, B. gives us these particulars of himself, and goes on to mention how the observance of the monastic discipline, the daily charge of singing in the church, and the delights of learning, teaching, and writing had made up his holy and tranquil life. His learning was great, covering almost all the subjects then known, Latin, Greek, astronomy, medicine, and probably some Hebrew. His best known work is the Historia Ecclesiastica Gentis Anglorum, on which we depend for

scientific works, including a treatise on the calendar, and various other historical essays, such as the History of the Abbots, of his own monastery. Another large division of his work consisted of theological treatises and Biblical commentaries. A collected edition of B.'s works was first published at Paris 1544. The best is that by Dr. Giles, 1843-44. See also various editions at Paris, Basel, Cologne, and C. Plummer's Opera Historica, Oxford, 1896. An English translation of the Ecclesiastical History is published in the Everyman Library (Dent).

Bedeau, Marie Alphonse (1894-63), Fr. general, born and died at Vertou, near Nantes. He was sent to Algeria in 1836, and in 1847 became its governor-general for some time. During the revolution in 1848 he was appointed, by Marshal Bugeaud, commander of one of the five columns for its suppression, but proved of little service. He was arrested with Cavaignae and La Moricière in 1851 and Danished, but in 1859 returned to his native land, where he lived in great seclusion until his death.

Bedegar, or Bedeguar, a Persian word meaning 'wind-brought,' used of a spongy gall, found chiefly on the wild rose, and especially on the sweet briar. It is covered with a mossy growth which is really undeveloped leaves. The gall insect which produces it is Rhodites rosæ. See Galls.

Bede-House, term used for an almshouse. See also BEDESMAN.

Bedel, or Bedell, the title of certain officials in Oxford, often called beadles (q.v.).

Bedell, William (1570-1641 or 42), Bishop of Kilmore, b. at Black Notley in Essex. Entered holy orders and was chosen fellow of his college, Emmanuel, Cambridge; was chaplain to Sir Henry Wotton at Venice. On his return to England he trans, into Latin various works concerning the history of the Church. In 1627 he became provost of Trinity College, Dublin, and in 1629 was elected Bishop of Kilmore and Ardagh; he fought the Catholies in a novel manner, by converting the better among their priests; he aided in the translation of the Prayer Book and Bible into Erse, and diligently saw that the translation was read in his diocese. At the outbreak of the rebellion in 1641 he was unmolested at first, but was afterwards imprisoned; he died in consequence of this. The translation of the N.T. was pub. at Dublin, 1602. See Burnet's Life of Bedell, 1685.

Bedesman, or Beadman, a person who resides in a bede-house, or is sur-

Bedesman, or Beadman, a person who resides in a bede-house, or is supported by funds appropriated for this purpose. Bede is the A.-S. word for prayer, and bedesmen are so called because they were under an obligation to pray for the soul of the founder of

their institution.

Bedford is the co. tn. of Bedfordshire, England, and a parl. and municipal bor. It is situated on the riv. Ouse, amid fertile pasture lands and corn-fields, about 50 m. from

The ut as large

parks. There is considerable trade in market garden and agric. produce. Engines and

manufactured, a very old indu

(d. 1573), one time Lord Mayor of London, is buvied in St. Paul's Church. He did much to benefit B., his native place, and endowed an Edward VI. grammar school, and the 'Harpur Trust' supports a modern and other schools for boys and girls. The name of John Bunyan is associated with the town. He was born here, and also imprisoned in the jail his chair is preserved, and the Bunyan Meeting House is on the site of the chapel in which he preached. B. returns one member to parliament.

Bedford College, a school of the London University, was founded in 1849 by Mrs. Reid to provide a liberal education for women. In 1878 the London University admitted women to degrees, since which date the majority of students at B. C. have read for a university degree in arts or science (pass or honours), although a general course of advanced study may be chosen. There is also an art school and a training dept. The latter was estab. in 1892 mainly for the purpose of training graduates for the teacher's diploma of the London University. The present buildings are in York Place, Baker Street, but new premises overlooking Regent's Park are being erected, which, it is expected, will be opened early in 1913.

Bedford, Dukes of, see Russell.
Bedford Level is a dist. in England of about 400,000 ac., situated in the counties of Suffolk, Norfolk, Lincoln, Cambridge, Northampton, and Huntingdon. It was once fenland, and was in the first place drained by the Earl of Bedford in 1634. A large portion is under cultivation, and coleseed and flax are grown. Wild fowl live in the more marshy dists. in vast numbers. These are largely sent to the London markets.

markets.

Bedfordshire is a S. Midland co. in England, bounded by Northampton on the N.W., Bucks on the W., Bucks and Herts on the S., by Herts and Cambridge on the E., and Huntingdon on the N.E. Its area is 461 sq. m. The surface is generally level; a branch of the Chiltern Hills crosses the N.E. and S. The Great Ouse flows through the centre to the E. and is through the centre to the E., and is navigable to King's Lynn from Bedford, the co. tn. The Ivel, a feeder of the Ouse, is also navigable. The valley of B. is fertile, and the Ouse valley is noted for its rich pasture-lands. Wheat is largely grown, and also barley, turnips, onions, cucumbers, etc. Great numbers of sheep are reared in the S. The manuis, are lace-making and straw-plaiting at Luton and Dunstable, and agric. machines and tools at Bedford and Luton. There There are limestone quarries in the co. Sev. relies of Roman times and parts of Roman roads are still to be seen in various parts. The co. is divided into 9 hundreds and 122 parishes, and returns two members to parliament. Pop. 171,249.

Bedlam (properly Bethlehem Hospital) is at the present time the London co. lunatic asylum, but was originally founded in 1247 as a priory at Bishopsgate, under St. Mary's of Bethlehem. It was afterwards converted into a madhouse, and transferred in 1676 to Moorfields, then in 1815 to Lambeth. At one time the inmates were treated in a terribly cruel manner, being exhibited as though they were wild beasts. Hogarth's picture refers to this.

Bedlam Beggars, or Tom-a-Bedlams, paramount to that of his parliament, names formerly given to such patients since the latter was his delegate. to the lunatic hospital of Bethlehem Louis XVI. held the last 'B. of J.' as, being partially cured, were allowed in 1788, and on that occasion he

science (pass or honours), although a togo at large. They were distinguished, general course of advanced study may be chosen. There is also an art school arm 'an armilla of tin printed, of estab. in 1892 mainly for the purpose about 3 in. breadth.'

Bed

Bedlington, an urban dist. of Northumberland. It is situated 2½ m. above the mouth of the Blyth. It has collieries and glass works. Its pop.

is 18,766 (1901). Bedlington Terrier, so named after the tn. of B. in Northumberland. It was first bred there at the beginning of the 19th century, and was for some time only known to the miners of the district, with whom it was, as now, a favourite sporting-dog. It stands about 13 in, and weighs from 18 to 20 pounds; colour blue-black, with black nose, or liver, tan, or sandy with light-coloured nose; the coat is short, crisp, and inclined to harshness; the head is narrow, the muzzle long and powerful; ears set low, and falling close to the head; tail tapering and not carried high; the legs are long and flanks cut up. The B. is a splendid ratter, and full of courage and fight, with remarkable speed.

Bedloe's Island, in New York harbour, U.S.A., lying, together with Governor's and Ellis Islands, in the Bay S. of Manhattan Island. On it stands the famous statue of Liberty, presented to the nation by France, which dominates New York harbour.

Bedmar, Alphonso della Cueva, Marquis de (1572-1675), Spanish ambas, to Venice and cardinal. He was appointed to Venice, in 1607 to break up a league against Spain with France and the Netherlands. The plot that he was supposed to have planned, in 1618, with the Viceroy of Naples, the Duke of Ossuna, to capture the city during the ceremonies of the marriage with the Adriatic, is the basis of Otway's tragedy, Venice Preserved. He left Venice on its discovery and went to the Netherlands as president of the council. He became a cardinal in 1822, and bishop of Oviedo, where he died.

Bedminster, a post-tn. of Somerset co., New Jersey, about 15 m. S.W. from Morristown; pop. 2000. Bednore, Bednur, or Nagar, a tn. of

Bednore, Bednur, or Nagar, a tn. of Mysore, British India, about 150 m. N.W. of Seringapatam. At one time a prosperous city, it is now little more than a village.

Bed of Justice was originally the throne of the Fr. king, when he was present at the sitting of parliament. The term signified an occasion when the king overruled parl. decisions, on the principle that his authority was paramount to that of his parliament, since the latter was his delegate. Louis XVI. held the last B. of J. in 1788, and on that occasion he

ordered the whole parliament to be on the Bedouins and Wahabis, 1831; imprisoned.

Bedos de Celles, Dom François (1706-79), Benedictine monk of St. Maur, was born at Caux. He was a He was a

master in the knowledge of organbuilding, and pub. L'art du factem d'orgues in 1766 to 1778. Bedouins, i.e. the people of the open land or desert, Arab ahl-bedw, bada-win, or as they also call themselves,

as distinguished from the pure Arab descended from Shem; thus the latter are the agricultural settled Arabs, are the agricultural settled Arabs, the B. the nomad pastoral people. The earliest home of the B. was Northern Arabia, Hejaz, and Nejd, from whence they spread in early times to Syria and Mesopotamia, and to Egypt and Tunisia. The name has lost much of its true racial signification of the specific of the specific party of the proposition of the specific party of the speci ance, for it is often applied to many Hamitic nomad tribes, such as the Bisharin and Hadendoas in Lower Egypt and the Soudan, while true B. have settled in vils. and become agricultural. Physically, the B. of N. Arabia is slight and wiry rather than strong, and below the middle height; in colour, brown, deepening in shade in the S. The features are good, with Their organisation is aquiline nose. their leader the 'sheikh, tribal, chosen for his qualities, whether of wealth, birth, or courage. Living in tents and moving from well to well and pasture to pasture, the organisation is loose, and inter-tribal feuds are common, with constant cattle raidings. They are notorious plunderers of caravans and travellers, and a regular toll is paid by the Turkish gov. to these tribes through whose ter. pass the pilgrimages to Medina and Mecca. The building of the Hejaz Railway has caused much disturbance in consequence among the tribes. Regarding all travellers as trespassers. they respect a safe conduct or pass-port which can be obtained by pay-ment from a sheikh. The proverbial ment from a sneigh. The proverban Arab hospitality is then freely ex-tended. Though professing Moham-medanism, they are by no means strict observers, except under pres-sure from the Wahabis, as in Nejd. Among remote tribes pagan pre-Islamic cults are said to continue. Polygamy is rare, but the marriage tie is loose. The dress of the men consists of a long skirt and a black comel's-hair cloak, with a black or This frame may be made of iron or striped headcloth; the women wear white trousers and skirt, with a large blue cloak which they draw over the face before strangers. The chief authorities are J L. Burckhardt, Notes indicate the framework of t

C. M. Doughty, Arabia Descria, 1882 W. S. Blunt, Bedouin Tribes, 1879 Blunt, Beach.
Anne Blunt, Pilgrimaye.
1881; Hill Gray, With the
1890; S. M. Zwemer,
1890; S. M. Zwemer, Lady Nejd, Bedouins, 1890; Arabia, the Cradle of Islam, 1900. Bed

to bec old ag

move ahl-beit, the people of the tent. pressure on one surface. The pressure causes a loss of vitality to the surrounding tissues through stoppage of the circulation, and results, if neglected, in a discoloration of the skin, then a slough, and finally a deep ulcer. The parts most liable are the base of the spine, the hips, shoulders, heels, and elbows, and the back of the head. The tendency to rapid formation of B. varies with the weight of the patient, his capacity to move, etc., but want of cleanliness, the wetting of bedclothes and bedding from perspiration and excretions, ruckled or untidy sheets are the chief exciting causes. A patient should, therefore, be frequently examined, kept scrupulously clean, and washed with soan and water daily, all damp clothing at once changed, the sheets kept smooth and the parts liable rubbed briskly; the skin on these parts should also be rubbed with methylated spirits, caude-cologne, whisky, or other stimu-lant, and dusted with boracic acid or prepared starch powder. Prevention of B. is thus a question of careful watching and good nursing, as is proved by their rare occurrence in a well-managed hospital. A water-bed or an air-cushion for the exposed parts is, of course, a good protection and of the utmost use if a B. has formed. The on-coming of a sore first shows as a dark red or purple patch, with some sensation of heat and irritation; the part should then be rubbed as before at least once every four hours; if the skin becomes abraded and a slough is threatened, hot fomentations of boracic should be applied fourhourly and all pressure removed by ringed air-cushions. Should a slough form, continued fomentations will bring it away, when the sore can be dressed with boracic contment, or if persistent in not healing, friar's balsam, red lotion, or zinc ointment may be applied.

Bedstead, though applied originally to the place in which a bed was located, is a term now employed to indicate the framework of the bed.

and is related to woodruff and madder. The plants are herbaceous, the flowers are in panicles with small sepals and four petals, while the leaves and stipules are arranged in whorls, the latter being large and leaf-like. G. Aparine is often called goose-grass or cleavers; G. verum and G. Mollugo are common in Britain.

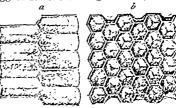
G. Mollugo are common in Britain.
Bedwelty, a parish of W. Monmouthshire. It is situated 7 m. S.W. of Pontypool, and has a pop. of 10,000.
It has coal mines and iron foundries.

It has coal mines and iron foundries.

Bedworth, a tn., Warwickshire, England, 5 m. from Coventry, on the Nuncaton-Coventry branch of L. and N.W.R. The Coventry Canal serves it for the carriage of its coal and ironstone mined there, and there are ironworks and brickfields. Pop. 6170.

Bee is the name of the highest form of insect in the order Hymenoptera, which includes ants, wasps, saw-flies. ichneumon - flies, and many creatures with four membra with membranous wings, the thorax and abdomen fused, well-developed mandibles, and an ovipositor in the female. The Bs. themselves constitute the family Apide, or Anthophila, which is sev. times sub-divided, and in addition to the above characteristics, they all agree in having the head united to the thorax, females with poisonous stings, males with antennæ divided into thirteen segments, females into twelve segments. In character they may be social or solitary, and the functions of life are divided among undeveloped females or workers, males or drones, and a highly-developed female or queen-B. There are about 1500 known species of Bs. exhibiting various degrees of specialisation and intelligence. As in every form of life, the chief interest centres in the reproduction of the species, and this is accomplished by the so-called queen-B. She is larger in size than her fellows, and permits no rival in her home, so that in each hive there is only one queen, and may be distinguished by the yellowness of the under part of her body, the absence of pollen-baskets and wax-pockets. Despite her short wings, she is capable of flying to a great height, and when she is pursued by her suitors, numbering probably 10,000, she rises in the air until but capa here folled to reach here. all but one have failed to reach her. The object of the nuptial flight accomplished, the male falls dead to the earth, and the queen returns to her hive to renew her race. The eggs are laid in special cells prepared for workers, drones, and a few queens, and may be laid at the rate of about 3000 in one day. The eggs are bluishwhite, about one-twelfth of an inch long, and hatch in about three days into worm-like larvæ. The young

grub is fed by the workers for about five days on food previously masticated for them, then all receive unmasticated food but the future queens, which are fed on a specially-prepared royal jelly. The food is believed to affect greatly the reproductive system of the B., the poorer material stunting its growth in the workers. and the richer stimulating it in the queens; if, indeed, the hive requires a queen, a worker-grub is often carefully fed up on royal jelly until it actually develops into the superior creature. After a few days the grub has stored up sufficient food for a fast. the workers seal up its cell, it spins its cocoon and rests for a short time in the pupa-state. After about three the pupa-state. After about three weeks from the day of egg-laying, the imago breaks from the cocoon, is assisted by the workers in detaching and cleaning itself, rests for a day or two, then takes up its work in the hive, and its cell is utilised for another egg or for the storing of honey. The

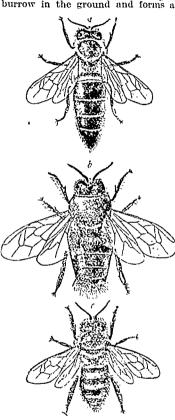


waxen cells of honey-bee a, in section; b, in elevation.

queen-pupa, however, is shut up and fed until her piping voice indicates that she has matured sufficiently. when she is released and immediately attempts to kill off all rivals. the early summer the process called swarming takes place. A number of Bs., accompanied by the old queen, rush from the hive, fly for some little distance, then settle in a thick cluster on some object near by. They then proceed to make a new hive, the workers constructing combs from wax secreted in their bodies, and the queen is then able to deposit her eggs. At this stage of their existence the Bs. carry with them a great deal of honey from the previous hive, and they are so quiet that they may be handled almost with impunity. As the new queens appear in the old home they may lead off new swarms, as many as three occurring in one summer, which prevents over-population. It occaprevents over-population. sionally happens that a worker-B. produces eggs, but these invariably develop into drones, which merely increase the size of the swarm. drones of the hive are males which

ing, and thus receive their name. They are also distinguishable by their large eyes and the extra segment of their antennæ. Beyond assisting in the fertilisation of the queen-in which, as has been shown, only one partakes —they appear to be of no value to the hive, and in the autumn the workers turn them out and kill them whole-The workers are provided with two peculiar structures, a wax-pocket situated under the middle joints of the abdomen, and a pollen-basket, which is a dilatation of a joint of the hind tarsi. Pollen is brushed into the basket by means of the numerous hairs on the legs, and furnishes the B.-bread necessary for the nutriment of the young. The honey is collected by the long, hairy tongue of the worker, and is stored up in the honeybag until it is used as food or deposited in the comb. In times of scarcity, the honey-dew secreted by aphides is collected, and Bs. also gather resinous matter known as propolis from trees to use it as cement in their The poison is composed of a transparent fluid containing formic acid and other irritants, which remains in a venom-bag, and the sting is curved in such a way that if once used it is difficult of withdrawal, and frequently results in the death of the user. The life of a worker-B. is short, usually lasting for six weeks, and into this short space of time it crowds the honey and pollen gathering, the care of the larvæ, building and cleansing of the hive, and its ventilation by means of their wings when it has grown too warm. The queen-B. may live for three summers. The intelligence of the B. has, from the time of Aristotle, Virgil, and Pliny, been recognised as surpassing that of any other insect. As regards its senses. the sight is very highly developed, as well as the power of smell. It has organs of taste, and Lord Lubbock has proved the existence of its ability to hear; the antennee are the highest organs of sensation. During the winter months it becomes torpid, its respiration is lessened, and it con-sumes little food, but in the spring the activity of its life is recommenced. The enemies from which it suffers are other insects, larvæ, and birds. B. louse, or Braula caca, is a parasite which attaches itself to the thorax of a B.; the death's-head-moth, Acherontia atropos, also attacks the B.; the old world family of birds named Meropide consists of B. eaters. Other creatures devour the larvæ, various lice infest the bodies of the different species, and even Bs. themselves are

make a peculiar, dull sound when flying, and thus receive their name. They to be derived is the *Prosopis*, a weak are also distinguishable by their large eyes and the extra segment of their modified hind legs, and a short propartename. Beyond assisting in the fertilisation of the queen—in which, as has been shown, only one partakes —they appear to be of no value to the



A, female (queen); b, male (drone); c, unfertile female (worker).

B.-louse, or Braula exca, is a parasite which attaches itself to the thorax of a B.; the death's-head-moth, Acheronia atropos, also attacks the B.; the old world family of birds named is the largest genus, having over sixty British species; it burrows in sandy or creatures devour the larva, various lice infest the bodies of the different species, and even Bs. themselves are sometimes parasites in the hives of more industrious neighbours. The

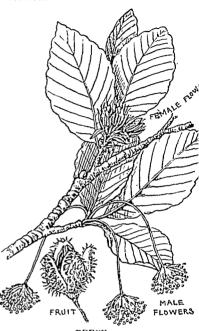
The genera Stelis and Nomada are known as Bs. belong to various other purely parasitic, the former laying its genera, and among them may be eggs in the cells of Osmia, the latter noted Carpinus betulus, white B., or in those of Andrena. Xylocopa, a solitary B., is sometimes called a seaside B.; Populus alba, Dutch B., carpenter-B., from its habit of boring large holes for its cells in timber; in water beech. appearance it is very hairy, and it is amongst the largest species of Bs. Chalicodoma is a mason-B. which covers its eight or nine cells with a large dome. Megachile is the leafcutting B., which makes its cells of pieces of leaf joined together. Anthidium places its cells in empty snailshells, and Osmia makes use of previously formed cavities. The chief social Bs. are well represented in Britain, by *Bombus*, the humble-B., and Anis mellifica, the honey-B., the habits of which have been described which builds a comb five or six ft. in length; A. Indica is a native of S. Asia; A. Alorca inhabits the W. Indies; A. Adansoni is found in W. Africa. See Sir John Lubbock's Ants, Bees, and Wasps, 1882; E. Saunders' Hymenoptera Aculeata of the British Islands, 1896; Maurice Maeterlinck's Wiska, Meille, 1991

Vic des Abeilles, 1901.

Beeberu, or Nectandra Rodici, is a tree belonging to the order Lauraceæ, growing in Guiana. The bark is medicinally important, and is known as beeberu, while the timber is called.

greenheart (q.v.).

Beech is the name of sev. species of Fagus, the typical genus of Fagaceæ. The common B., F. sylvatica, forms large forests throughout Europe, and . is greatly valued for its wood, which is used in the manuf. of small articles, e.g. sabots and household utensils, but is of little value to the earpenter, as it readily rots when exposed to air. It is also of use as firewood, while the bark is employed in tanning, the catkins for packing, while the nuts yield a volatile oil, and are frequently used for fattening pigs. Although the trees may grow to a height of 100 ft., they are often grown in a stunted form, and clipped to make hedges. flowers appear only every few years, the male flowers forming pendulous catkins, while the females grow in pairs within a mass of scales, which later develop into a cupule enclosing two nuts. The copper and purple Bs. are well-known varieties of F. sylvatica, and are noted for their brightcoloured leaves, as is the red B. of America, F. ferruginea. The evergreen B. F. betuloides, is known as the myrtle-tree in Australia; F. obliqua is the oblique-leaved; F. fusca, the New Zealand B.; the weeping B., fernleaved New Zealand B.; the weeping B., fern-leaved B., and crested B. are the varieties pendula, asplenifolia, and fourth son of Lyman B., and brother cristata of F. sylvatica. Other trees of Harriet Beecher Stowe. He read



BEECH

Beechdrops or Cancer-root, is a name given to the parasitic herb Epiphagus Virginiana of the order Orobancheæ. These plants are destitute of green foliage, and live on the naked roots of beech trees in N. America. Similar parasitic plants, such as Albany and false beech-drops belong to the order Ericaceæ.

Beecher, Catherine Esther (1800-78), the eldest daughter of Lyman B., was born at East Hampton on Long Is. She remained unmarried, having in carly life been engaged to Professor Fisher, of Yale College, who was drowned at sea. Principal of a school in Hartford, Connecticut, from 1822 to 1832, she devoted her life to the advancement of education of women by organising societies and by her numerous writings on the subject.

Casuarinaceæ, in Australia.

Beehive House is a building, of primitive architecture, made of un-hewn stones and without mortar, specimens of which are to be found in Ireland and W. Scotland. They consist of long stones laid down in a circle, and each course is overlapped by the one resting immediately above it, and with the circular roof it resembles a beenive in shape. From the 7th to the 12th century churches, priests' houses, and other buildings were formed after this fashion, and a cluster of them would frequently be surrounded by a stone wall for protection.

Bee-keeping was in practice among the ancients thousands of years ago, but it is only within the last fifty to one hundred years that it has been proved a source of profit to the agriculturist. It is no longer necessary for bees to construct their own hives and combs, and as wax is provided for them their labour in many directions is so much lightened that the output of honey has increased to an In former days enormous extent. 40 lbs. was considered to be an average amount collected, but now the average is doubled, and as much even as 400 lbs. has been obtained from a single hive. In the winter the surviving bees are usually allowed about 20 lbs. of honey for their use, and this may be supplemented by various syrups as they are required. In the supply of extra food, but in the summer all that is required in this direction is that the hive should be placed in a spot surrounded by suitable flowers. In Scotland the hives are moved to localities in which heather is abundant, to obtain the rich dark heather-honey. During the spring, when the bees begin to swarm. the keeper is careful to prevent them from emigrating beyond his power. Usually when the cluster appears he covers it with a straw-skep, and when the various members have settled in it they are transferred to their new hive, but artificial swarming is sometimes used when a queen is placed in a new hive situated on the position of one. A swarm consists of 40,000 to 50,000 insects. the old one. Modern B, owes much to the American clergyman, the Rev. L. L. Lang-stroth, who in 1851 produced a hive in which movable combs, built in frames, hung side by side. Later it was found that bees would use thin sheets of bees'-wax, called comb-foundation, stamped with an outline of the cell, if it were put near their

name is applied to trees of two different genus—the Swartzia, belonging to the order Leguminose, in Guiana, and trees of the order of a rotating machine. Honey sections of a rotating machine. Honey sections are also placed in hives so that the substance may be sold in a very marketable form. In obtaining honey the person about to extract it usually covers all unprotected parts of his body as a guard against stings. He then stupefies the bees with smoke, chloroform, or by some other means. See L. Langstroth's Hive and Honey See L. Langstroth's Aive and Money Bee, 1889; F. R. Cheshire's Bees and Bee-keeping, 1888; F. Benton's Honey Bee, 1899; S. Simmins' Modern Bee Farm, 1893; A. B. Comstock's How lo Keep Bees, 1905.

Beelzebub (the god of flics, from Heb. baal, lord, zebüb, fly), a Philisting god whose temple was at Ekron. It

god, whose temple was at Ekron. It is now thought that the word developed from Baal-Zebul, i.c. ' lord of the high house.' The Jews regarded all heathen gods as devils, and accordingly B. or Baalzebul appears in the

N.T. as the prince of demons. Beemster, a polder in N. Holland. It is situated 13 m. N. of Amsterdam,

and has a pop. of 4000. Beer, see BREWING.

Beer Acts. The sale of B. in England is under magisterial control, though in the early part of the 19th century licences could be obtained without application to magistrates. In 1869 the Wine and Beethouse Act was passed, and the colo of P

By this Act a third of

beerhouse premises, and a minimum value was fixed, based on the pop. of the neighbourhood. For the first hundred barrels the brewers paid a tax of £1, and on every additional fifty 12s. See also LICENCE and LICENSING LAWS.

Beer-Alston, a tn. in S.W. Devon-shire, 8 m. from Plymouth, and situated on a height above the valleys

of the Tavy and Tamar.

Beer-money was an allowance of one penny a day to soldiers of the British army in lieu of a supply of beer, instituted in 1800 and abolished seventy-three years later. It was also given to servants by householders instead of providing them with beer, to save trouble and waste.

Beeroth, the O.T. name for the modern Birch, a vil. in Palestine, 9 m. N. of Jerusalem. It had some importance as standing on or near the N.

frontier of Judah.

Beersheba (' well of the oath,' or possibly ' seven wells ') is, in ancient geography, a tn. in the extreme S. of Palestine, 50 m. from Jerusalem. The expression 'from Dan to B.' was indicative of its southerly position. The covenant of Abraham and Abimelech,

but the two wells still remain, and they still contain a supply of water.

Beestings, or Beastlings, the name applied to the first milk taken from a cow or other animal after parturition. It is thicker and more yellow than ordinary milk. It has a larger percomposition, but not so much casein.

Beeston, a parish in the co. of Nottingham, and situated 3 m. S.W. manufactures of lace and hosiery.

Bees'-wax, a substance produced by bees and used by them in the construction of the honey-comb. The wax is secreted by special glands in the abdomen of the bee, is pressed out between the segments of the body and moulded into roughly circular cells for the reception of the eggs and honey. It may be collected by drain-ing off the honey and heating the residue in water, when it rises to the surface and solidifies on cooling. B. , for model-

or effigies. niture, and

· ointments and plasters, on account of its unirritating quality. It is sometimes taken internally, when it acts as a protective to the gastric and intestinal surfaces.

Beeswing is a thin film as delicate as the wing of a bee, which appears sometimes as a crust on port and other wines, and indicates its age.

Beet is the name applied to sev. species of *Beta* (q.v.) of the order Chenopodiaceæ. The roots of many species are valued as a food, and Bela vulgaris, the common B., is used in the manuf. of sugar. B. maritima, sea or wild B., is eaten as a vegetable as well as B. rubra, the red beetroot. B. cycla, white beetroot, is cultivated for itsleaves, which are eaten like spinach.

Beet-fly (Anthomyia beta), insect, so called because the maggots feed on beet leaves. The eggs are laid between the leaves. As soon as the maggets are hatched they begin to feed to the leaf round them and continue feeding for one month, when they turn to chestnut-brown pupe. The flies come out a fortnight later and are grey in colour with black hairs. There is a brood in the summer and another in the autumn.

Beethoven, Ludwig van (1770-1827), Ger. musical composer, was of Belgian descent. His grandfather, Louis, left Antwerp in 1732 and settled in Bonn, where he became one of the archbishop-elector's musicians. son (father of Ludwig) was a tenor singer at the court, but through drink

King of the Philistines, was made and thriftlessness was always poor there. Its Arabian name is Bir-es-Seba, meaning 'well of the lions.' was only four years old, but the latter, Yery little of the old tin. is left now, to whom he had been very kind, The grandfather died when Ludwig was only four years old, but the latter, to whom he had been very kind, always cherished his memory. wig's father taught him to play the violin and clavier; he displayed such wonderful precocity that at nine he had to be placed under more accomplished teaching. At twelve years of age he occasionally acted as deputy centage of albumin and salts in its for the court organist, and at thirteen pub. his first composition. In 1784 he was appointed assistant organist the court, and conducted the to of that tn. Its pop. is 4479, and it has orchestra at the opera. Three years later, during a short visit to Vienna,



LUDWIG VAN BEETHOVEN

he played before Mozart, who was amazed at his talent in improvisation, and gave him a few lessons. For the next few years his life at Bonn was a trying round of hard work and re-sponsibility; his mother died, and his father's habits became so disorderly that his salary had to be paid to Ludwig, who thus, at about nine-teen, became head of the family. In 1792 the archbishop-elector (brother of the Emperor Joseph II.) sent him of the Emperor Joseph 11.) sent him to Vienna to study under Haydn, with whom, however, he did not get on well. B. was clumsy in manner and speech, a great contrast to the brilliant Mozart, just dead, whom Haydn had intensely admired; thus Haydn treated the new-comer somewhat additional he in attention desired. what coldly, and he in return underhard work and brilliant genius, and in a few years was a 'personage' in the musical world of Vienna, in spite of an ungovernable temper and rude manners. For example, at the house of Count Browne, he was playing a duet with Ries, when a young noble-man in the room persisted in talking to a lady. B. stopped suddenly, saying loudly, 'I play no longer for such hogs:' nor would he allow Ries to do so. Of a suspicious nature, he was very insulting to those he suspected, even people of high rank. Haydn nicknamed him 'The Great Yet the aristocracy bore with it all for the sake of his genius. Princesses and countesses would forgive any rudeness, would receive his lessons wherever he pleased, and put up with his storming and tearing up their music if they were careless. He had no tact or discretion in matters of ordinary life; it was said of him that he was like a clever man brought up in a desert, and then suddenly turned loose into society. He was 5 ft. 5 in. dered, large peculiar in appearance, 5 ft. in height, broad shouldered, headed, and ruddy in complexion. As a teacher he was impatient but very painstaking; in piano playing he was quiet, but extravagant in conducting. He was so absent-minded that he once insisted on paying a waiter for a dinner he had not had or even ordered. It must be said in excuse for his peculiarities that his early troubles had seriously affected his health and spirits. When he died, a post-mortem examination proved that he had suffered since childhood from an incurable disease aggravated by want of home comfort and good food, and later by unskilful medical treatment. His liver had shrunk to half its proper size, and there were serious ailments of old standing in the ears and pharynx. His family, too, tried him greatly; his father's character has already been mentioned, and his brothers, Johann and Caspar, the latter in particular, caused him endless trouble, and when the latter died, his son turned out worse still, in spite of all his uncle's self-denying endeavours on his behalf. In a pathetic document written by B. as far back as 1802, addressed to his brothers, he complains of the harsh judgments passed upon him by those who knew nothing of the years of suffering he had endured, and tells of the horrible dread which he felt of his growing deafness, which would in-capacitate him for the enjoyment hind wings both of society and of his beloved which alone art. This deafness in time became so function in flig

valued his teacher. In spite of this he and conducted he heard nothing of gradually worked his way by sheer the music. His finest works were composed after he had lost the power of enjoying them. His life ended sadly. In the winter of 1826-27 he was staying at the house of his brother Johann, and was taken ill. His brother would neither let him have a fire in his room nor give him the food he required, and at length sent him back to Vienna, during bad weather, in an open chaise; he took a severe chill, which brought on dropsy, and he died on March 26. As a musician B. stands alone. Other composers have been great, but not with a greatness like his. earlier work the influence of previous masters, especially Mozart, may be traced, but gradually he built up a style of his own, more and more noble as years went on. His total production is broadly divisible into three In the first, although influenced by his predecessors, already began to show such individuality that, for example, Haydn advised him not to publish his trio in C minor (Op. 1, No. 3), probably as being too daring for public taste. His second period, which included his Sinfonia Eroica, the Leonore music, Eamont, and the Appassionata, v merged

his latter which in grandeur of construction and polyphonic effect transcended anything previously achieved. this period belong the Sonata in (Op. 106), Overture in C (Op. 124), and other works of great force and beauty. The influence of B. on the form and growth of musical art has been immeasurable, and must be immortal. See Beethoven, F. J. Crowest, 1911.

Beetle is the common name of that order of insects which technically is known as Cole-optera. The optera. which species. amount in number to about 150,000. have hard and horny fore-wings, usually with a usually with a g straight suture § them between not when which motion, are very rarely absent



WATER BEETLE

function in flight, antennæ with a complete that although he still played varying number of segments, biting

Bs. pass through a complete Froissart. metamorphosis. Their food varies very greatly; some are fruit-eaters, some wood-eaters, while others live on dead animals, and a few are para-sitic in habit. Different species are described under their particular headings, e.g. Cockchafer, Ladybird, WEEVIL.

Beetling is a process designed for the finishing of linen and cotton goods in which a beetling-machine hammers down the cloth by means of wooden stamps which rise in succession and fall by their own weight. This flattens the surface of the cloth and gives it a

hard appearance.

Beets, Nicolaas (1814-1903), a Dutch poet and author, born at Haarlem. He was pastor of Heemstede, 1840; of Utrecht, 1854; professor of theology at the university of Utrecht, 1875-84. His reputation was built on his stories of Dutch life, by which he is chiefly remembered. His Camera Obscura painter, and depicted many historical (1st ed., 1839, under the pseudonym and biblical scenes. Hildebrand) is a classic, and has been Begas, Reinhold (b. 1831), German translated into many European lansculptor, son of Karl Begas the Elder. Duproix, 1907.

A legendary old woman who, being platz, Berlin, 1901; and on the busy sweeping her house when the three wise men of the East passed on their way to ofier gifts to the Infant Christ, excused herself from going to the window on the ground that she would see them on their return. The Adventures of Sir John Sparrow, wise men returned another way, and 1302; Bundy in the Greenwood 1902. B. was punished by being obliged to B. was punished by being ounged to wait for them ever since. Her festival Workers, 1905; is held in Italy on Jan. 5, when her The Vigil, 1907 effigy is carried through the streets, Racket and Resignal great rejoicing. On Twelfth 1909; Broken Night, it. children hang up a stocking | Shadow, In the Hands of the Potter, before the fire, and B. brings to good | 1910; Other Sheep, The Challenge, 1911. children toys and sweets, but to bad children ashes. The tradition appears to be rather confused, for although she is the counterpart of Santa Claus, her name is used, like that of a bogey,

to frighten naughty children. Beffroi, Belfry, or Breaching Tower. was usually covered with raw hides 1879. to protect the besiegers in the lower story from boiling oil and fire. The

mouth-parts, and the larvæ are grub-; tower is mentioned by Cæsar and by

Beg, or Bey (cf. Persian baig), a Mohammedan title given to the administrator of a dist. or tn., now used more generally as an honorific title, applied to officers and men of good family, throughout the Turkish In Tunis it has come to be empire. used as the hereditary title of the reigning sovereign.

Begarelli, Antonio (c. 1479-1565), a celebrated modeller in terra-cotta of Modena, where he was born. He was the friend of Corregio. There are few of the works of B. left; the prin. are the 'Descent from the Cross,' and a 'Pieta' at Modena. containing many figures in the round rather

larger than life.

Begas, Karl (1794-1854),painter to the King of Prussia, and professor in the Academy of Arts at Berlin, was born at Heinsberg and died at Berlin. He was famed as a portrait

guages. The continuation, Na Vijflig b. at Berlin, and studied there and in Jaar, appeared in 1887. He also wrote Rome. In 1866 he returned to Berlin, critical and theological essays, of where he has spent the rest of his life. which Stichtelijke uren may be men- He has executed a large number of tioned. His poetry was pub. in four statues and architectural designs for vols. (1873-81), and includes Guy de public places, as well as numerous Vlaming, 1853; and Ada van Holportrait busts. Among his best-known land, 1846. See Nicolas Beets et works are statues of Schilleo, 1863; la littérature hollandaise, by J. J. Humboldt, 1882; Bismarck, 1901, and litterature hollandaise, by J. J. Humboldt, 1882; Bismarck, 1901, and uproix, 1907.

Befana, a corruption of Epiphany. meshalle at Berlin, in the Schlosslegendary old woman who, being platz, Berlin, 1901; and on the

wise men returned another way, and 1902; Bundy in the Greenwood, 1902; Bundy on the Sea, 1903; Moster Workers, 1905; The Priest, 1906; The Vigil, 1907; Tables of Stone, Racket and Rest, 1908; The Cage, 1909; Broken Earthenware, The

Begg, Alexander (b. 1840), Begg, Alexander (b. 1840), a Begg, Alexander (b. 1840), a Canadian writer, born in Quebec. He to be rather confused, for although he is the counterpart of Santa Claus, or finame is used, like that of a bogey, or fifther naughty children.

Beffroi, Belfry, or Breaching Tower. With W. R. Nursey, Ten Years in movable tower used in mediaval Winnipeg: a Narration of the History and the Pringingal Exercise in the History. times during military sieges. It moved of the Principal Events in the History on wheels, was sev. stories high, and of the City from 1870 to 1879 inclusive,

Begg, James (1808-83), a Scottish Free Church leader, born at New top story held a hinged drawbridge, Monkland, Lanarkshire; educated at to be let down upon the city wall for Glasgow University. At the disrupthe landing of the assailants. Such a tion of the Scottish Church (1843) he

belonged to the evangelical party and | 88; bishop of Chicoutimi, 1888-91; became leader of the constitutional coadjutor to Cardinal Taschereau, became leader of the constitutional party in the new Free Church. From time till his death he was minister of the church of Newington, Edinburgh. He was strongly opposed to anything savouring of liberalism in rains theology and church practice—parti-culary the projected union with the United Presbyterian Church. He produced a considerable number of works on theological questions. Consult his Life by T. Smith (1885-8).

Beggar, a word of uncertain origin, which is used in speaking of a person who asks alms, usually habitually, and who generally lives on the money and goods which he thus receives. See such articles as MENDICANCY, POOR

LAWS, and VAGRANT.

Beggar-my-neighbour, a game of cards, played by two or more persons. The players, holding their cards with backs upward, play down a card alternately, until one player turns up a court card, when his neighbour must pay him four cards for an ace, three for a king, two for a queen, and one for a knave, and in addition he wins the cards already thrown on the table and places them all under those in his hand. At the last one player obtains all the cards in the pack and wins the game.

Beghards, an association of men which was formed during the early part of the 13th century in the Low Countries, corresponding to and pro-bably in imitation of the female Beguines (q.v.). Many vagabonds and mendicants adopted the title who did not belong to the brotherhood.

They were denounced by the pope and councils, and suffered persecution from the Inquisition. Their communities had almost disappeared by

the end of the 14th century.

Begharmi, Baghermi, or Bagirmi, a sultanate of Central Africa, S. of Lake Chad, and E. of Bornu, forming a large plateau, with an average alt. of 1000 ft., sloping gently to the N. The country is fairly fertile, affording pasturage to flocks of cattle. pasturage to nocas of catale. Including inhab. are principally negroes, and the total pop. is estimated to exceed 1,000,000. The cap. is Masenya, the area of the country about 71,000sq.m. Begin, Louis Nazaire (b. 1840), a Roman Catholic archbishop, born at

Point Lévis. He was educated at the Little Seminary of Quebec and at the Laval University, where he was awarded the Prince of Wales' gold medal in 1862, being the first to receive this prize. He was ordained in 1865 at Rome, where he remained to make a special study of eccles. history and Oriental languages, 1866-67. He was appointed prin. of the Laval Normal School, Quebec, 1885.

coadjutor to Carainai lasenceau, with the title Archbishop of Cyrene, 1891-8; and Archbishop of Quebec in 1898. He is the author of La Primaulé et l'Infaillibilité des Sources de la Caraina de l'Archive de l'archive de la Caraina de la Cara rains Pontifes, 1873; La Sainte Ecriture et la Règle de Foi, 1874; Le Culte Catholique, 1873; Aide Mé-moire ou Chronologie de l'Histoire du Canada, 1886; Catéchisme de Controverse, 1902.

Beglerbeg, or Beylerbey, a Turkish word which signifies bey of beys. It was the term applied to the governorgeneral of a province who had under him several beys, and was second in rank to the grand vizier. The external distinctions were three ensigns consisting of staves trimmed with the tail of a horse.

Bègles, a tn. of dept. Gironde, France, on the R. Garonne, 3 m. S.E.

of Bordeaux; pop. 12,061.

Begoniaceæ, a small order of tropical dicotyledonous plants, comprising four genera, of which Begonia is the chief. All the species of begonia have fleshy leaves, often richly coloured with crimson, succulent stems, and neat-looking pink flowers growing in panieles; the leaves are root-leaves, and have one side larger than the other-hence the name of clephant's ear sometimes given to the

Beg-Shehr, or Bei-Shehr, a tn. of Asia Minor, 40 m. W.S.W. of Konieh. It is situated on both sides of a riv. of the same name as it enters Lake Beg-Shehr. The lake, which is also known as Kirili Geul, is about 35 m. layer and contains a conta long, and contains many islands; it discharges into a smaller lake, Soglah

Lake, lower down.

Beguines are an order of sisters belonging to the Catholic Church, which was traditionally founded by St. Begga in 698, but, as now ac-cepted, by a priest, Le Beghe, in the 12th century. They were first known in Holland and Germany. They took no vows, and they lived in close proximity in separate houses called beguinges.' Their houses often received large donations, which were devoted to charitable purposes. A hospital adjoined each institution. and frequently a church also. The sisters lived in great purity and poverty, giving their services in nursing, and tending the aged as well as educating the children. They were so useful that for a very long time they received sanction and shelter. sisterhood is still in existence in the Catholic Church. The most famous of the institutions is at Ghent, under the name of St. Elizabeth's Beguinages. It consists of 100 small dwelling. houses, for the sisters, with a couple

of churches, and 16 convents. The ! sisters welcome the visits of strangers: they work among the poor and nurse the sick.

Begum (Hindustani begam, fem., from Turkish beg, lord), a name given to sultanas and to any Mohammedan

lady of high rank.

Behaim, Behem, or Boeheim, Martin (c. 1459-1506), a celebrated Ger. cosmographer, b. at Nuremberg. He studied under Regiomontanus (John Müller). In 1484 he is said to have accompanied the fleet of the Portuguese Diego Cao on a journey of discovery along the Congo Coast. W. Africa. In 1486 he visited Fayal, in the Azores, returning to Nuremberg in 1490. He acquired fame for his practical methods of finding the lat, at sea by means of astronomical maps, and for the globe which he bequeathed to his native city. He died at Lisbon. Facsimile

and Bchaim:

Globe, by E. G. Ravenstein, 1909. Beham, Hans Sebald (1500-50), a Ger. painter and engraver. He was one of the best of Albert Durer's scholars, but his profligacy was, according to tradition, equal to his ability. As a painter he is scarcely His prints consist of woodknown. cuts, and of etchings and engravings His cousin, Barthel or on copper, Bartholomans B., was an excellent painter for his period. He was born about 1496 (or 1502) at Nuremberg, was a pupil of Albert Dürer, and died in 1540 at Rome. As one of the petits maîtres of Dürer he engraved many beautiful works, and excelled as a painter of portraits, genre, and religious pictures. His picture in the Pinakothek at Munich of the resuscitation of a woman by touching her with the cross is one of the masterpieces of the old Ger. school. Barthel B. was also an engraver.

Behar, or Bihar: 1. An old div. of India, in the basin of the Ganges, now one of the four provs. of the Bengal presidency. It comprises Patna and Bhagalpur, which are subdivided into 44,170 sq. m.; pop. 24,241,305. 2. (Sanskrit Vihar, a monastery.) The chief tn. of the above prov., 35 m. S.E. of Patna. It was formerly a city of greet S.E. of Patna. It was formerly a S.W. city of great renown, and has a great is. of inn for Mohammedan pilgrims. There and prints and cottons. Pop. 44,984.

Beheading, or execution by de-capitation, is an ancient form of capital punishment which was practised among the Greeks and Romans, centuries. See DECAPITATION.

Behem, Martin, see BEHAIM.

Behemoth (Heb., large beast) is a large herbivorous animal mentioned in Job xl. 15-24. It is supposed by many interpreters to mean

hippopotamus.

Behera, a prov. of Egypt, forming part of the delta of the Nile, W. of the Rosetta branch of the riv. The chief tn. of the dist. is Damanhur (pop. 31,000), where the railway from Cairo bifurcates for Alexandria and Rosetta. Pop. about 215,000.

Behistun, a rocky mt. side in the prov. of Ardelan, Persia, 22 m. E. of Kermanshah. It rises to a height of 1700 ft., and bears an inscription, at a height of 300 ft., in cuneiform writing in three languages, Persian, Susian or Elamitic, and Babylonian, besides some minor records in Arabic and Gk. The main inscription, first deciphered and trans. by Sir Henry Rawlinson (1835-45), relates the exploits Darius the Great (d. 485 B.c), and forms the key to Assyrian antiquities.

Behm, Ernst (1830-84), a German geographer and statistician, born at Gotha. He was the founder of Gcographisches Jahrbuch, and ed. it from 1866-84; also editor of *Petermann's Mitteilungen*, 1878-84. From 1876 he was in charge of the statistical dept. of the Almanach de Golha. With Hermann Wagner he compiled Bevölkerung der Erde, 7 vols., 1872-82. Behmen, Jakob, see BOEHME, JAKOB.

Behn, Aphra (1640-89), Eng. novel ist and dramatist, born at Wye, the daughter of John Johnson, and as a child went to Sarinam, S. America, where she met the slave Oroonoko. She married a Dutch merchant. B., on returning to England, and later, was employed on a diplomatic service in Flanders by the king. When left a widow she supported herself by her pen. Her works suffer from coarseness but show considerable ability. Her best drama is *The Rorers* and her most famous novel *Oronoko*. Her Works (6 vols.) appeared in 1871.

Behring, Vitus (d. 1741), a Dane by birth; entered the navy of Peter the Great, and made several attempts to settle the question as to the junction of Asia and America; discovered the island and strait that now bear his name.

Behring Island is situated in the S.W. of B. Sea. It is the most westerly is, of the Alcutian group, desolate uninhabited. Behring is trade in silk, muslin, and coloured wrecked here, and, without food or shelter, died miserably in 1741.

Behring Sea and Strait, the latter divides the continents of America and Asia, and also joins the N. Pacific with the Arctic Ocean. It is about and prevailed in England for several 38 m, wide at its narrowest part, but is wider at the N. and S. extremities.

There are numerous bays on either, side of the strait, which, however, are useless, as the waters are frozen over for several months in the year. strait is named after the navigator Behring, who discovered it. B. Sea, which is sometimes called the Sea of Kamchatka, is a part of the N. Pacific Ocean, and is situated between B. Strait and the Aleutian Islands. It is the haunt of the whale, walrus, and fur seal.

Behring Sea Question, The, an international dispute, between the govs. of the United States, Great Britain, and Canada, connected with the unlicensed fishing of Canadian sealers in the Behring Sea. The seals round Pribylov Is. had been preserved under the supervision of the Russian gov.; after the cession of Alaska in 1867 the industry had been handed over to the N. American Commercial Co. started on a business basis the hunting and killing of seals beyond the three mile limit in the Behring Sea, in which Great Britain has compercial privileges, granted by Russia in 1825. The gov. of the United States in 1825. The gov, of the United States took steps to prevent Canadian fishing, and their jurisdiction was objected to by the British minister, Sir Sackville West. In 1892, by the Blaine-Pauncefote Treaty, it was agreed that a Court of Arbitration should be held in Paris to settle the question at issue. This court decided:

(1) That the United States gov. had a right of protection of property in (1) That the United States gov. had no right of protection of property in seals beyond the three mile limit; (2) that the United States gov. had no exclusive rights of jurisdiction in the Behring Sea; (3) that a close season should be observed between May I and July 31; and (4) that vessels must be licensed, and the persons engaged in the business must be properly qualified. A bill, containbe properly qualified. A bill, containing these and other clauses, passed into law in America and in Great Britain. The United States also paid a sum of £92,700 to the Canadian gov. as a compensation for the ships she had unlawfully seized or damaged. Consult Stanton, The Bering Sea Controversy, 1892; Report of the Bering Sea Commission, 1893; and Henderson, American Diplomatic Questions, 1901.

Behut, also known as Jhelum, Jehlam, or Bitasta, and to the anet. Gks. lam, or Bitasta, and to the anct. Gks. as Hydašpes. One of the 'five rivers' of the Punjab. Rising in the mts. of Kashmir, it flows for 100 m. through the Kashmir Valley, passing in its course Srinagar, and entering the plains about 250 m. from its source, it runs past the tn. of Jhelum. Thence in a S. and later S.W. direction it flows on to join the Chenab R., 80 m.

N.N.E. of Multan. The total course is about 450 m., and the river is navigable throughout nearly all of its length.

Beibars, Baybars, or Bibars, two Egyptian rulers: 1. Beibars I., (1620-77), sultan of the Manelukes. He frequently fought against the Christians and the Mongols, and was cruel and bloodthirsty in war. He defeated the Crusaders under Louis IX. of France, captured Antioch in 1268, and ravaged the country round Mecca in 1269. He subdued the Armenians, and at one time almost extirpated the Syrian Assasius. The mosque at Cairo, which bears his name, was erected by him. 2. Beibars II. (1309-10) was a Circassian by II. (1309-10) was a Circassian by birth. He was made ruler of Egypt by the Bahri Mamelükes, but was assassinated by a rival within a year.

Beijerland, or Bayerland, the name 1886 certain Canadian sealers of three coms. of Holland known as

of three coms of Holland known as Oud, Nieuw, and Ziud respectively, situated on the is. of Hocksche Waard. Total pop. 9300.
Beilan, a small tn. in the N. of Syria, not far from Alexandretta, used as a summer resort by the European colonists of that tn. The European colonists of the supposed to be been and the metal supposed to be the anct. Pyle Syrine (Syrian gates) probably used by Alexander the Great and by the Crusaders. The tn. is the site of the battle fought in 1832 is the site of the battle fought in 1832 between the Turks and the Egyp-Pop. about 5000.

Beilstein, Friedrich Konrad, Russian chemist, was b. at St. Petersburg in 1838. After studying at Heidelberg. Göttingen, Munich, and Paris, he beassistant in the Göttingen laboratory in 1860. Six years later he was made professor of chemistry at the St. Petersburg Technological Institute, from which position he retired in 1896. His publications are numerous, the chief being the Handbuch de organischen Chemie (Hamburg, 1880-83), and the Anleitung zur qualifaliren chemischen Analyse (Leipzig, 1867). T.Beira, a Portuguese prov. reaching from the Atlantic to the Spanish frontier. It is bounded by the R. Douro in the N. and by the Tagus and the Estremadura range in the S. It has an area of 9256 sq. m. It is mountainous but well watered, and there are many mineral springs. The productions are olives and wine. There are seven cities in the prov. and 238 other towns. Pop. 1,518,000 Beira: 1. A dist. in Portuguese E.

Africa, situated round the lower course of the R. Pungwe. It is divided into the territories Manicand Sofala. 2. The chief the of the dist. B., a seaport at the mouth of the Bek

Beira-Salisbury Railway, completed are 1902. The exports rubber, sugar, oil-seeds, bees'-wax, ground-nuts, mangrove bark, and ivory. Some gold is also found. Pop. 5000.

Beiram, see Bairam. Beirut, Bairout, or Beyrout, a tn. and the prin. seaport of Syria, 55 m. W.N.W. of Damascus on a bay of the Mediterranean. The walls are 3 m. in circumference, and the suburbs be-yond the walls are greater than the conclosed to. Forming the seaport of Damascus, B. is a progressive and prosperous commercial centre. The harbour will only admit small ships, but the larger ones may anchor at a distance of half-a-mile from the shore, in bad weather shelter being found in the bay of the river of B., about 3 m. distant from the tn. It is clean, plentifully supplied with springs, and contains large bazaars, an American college, the palaces of a Greek and a Maronite bishop, and many missions and other institutions. There is a good service of European steamers. The prin. exports are silk goods and wool, oils, oranges, and other fruits, while most of the imports are from Great Britain. Silk is produced in large quantities, and there are important manufs. of silk goods and gold and silver thread. An excellent road and a railway connect with Damascus, crossing the Lebanon. The pop., which is continually on the increase, is estimated to exceed 120,000, about

one-half being Europeans.

Beishehr Göl, a fresh-water lake in Karaman prov., Asia Minor, 35 m long from N.W. to S.E., and 1 m. wide, draining into the Soghla Göl. The tn. of B. is on the E. shore of the

lake.

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Beit, an Arabic word which properly signifies a tent or hut, but is also used to denote any edifice or abode of men. It is often found as a component part of proper names, e.g. Beit-al-Haram, i.e. 'the sacred edifice,' or 'the edifice of the sanctuary,' adorigation to the a designation frequently given to the

temple of Mecca.

Beit, Alfred (1853-1906), S. African financier and philanthropist, born at Hamburg; he entered a firm of S. African merchants there, proceeding to Kimberley in 1875 as a representative for the firm in the diamond dist. In 1879, after returning to Hamburg for a year, he set up as an independent diamond merchant in Kimberley. In 1882 he became associated with Porges and Wernher, and during 1884-8 was S. African representative of their firm of J. Porges and Co., going into partnership in 1890. He was a close friend of Cecil Rhodes, and assisted

R. Pungwe. It is the nearest port to him in the amalgamation of the Mashonaland, and the terminus of the Kimberley mines into the De Reere him in the amalgamation of the Kimberley mines into the De Beere Consolidated Mines. After 1888 he was engaged in developing the Trans-vaal gold-mines, and in 1889 became a director of the British S. Africa Co. for the administration of Rhodesia. In 1905 he founded professorships at Oxford in colonial history, and left large sums to various charities at his death death.

Beit-el-Fakih, a fortified tn. in the vilayet of Hodeida (formerly Yemen), Asiatic Turkey, near the Red Sea. An important trading centre for

Pop. about 8000. coffee.

Beith, a market tn. in N. Ayrshire, Scotland, 10½ m. S.W of Paisley, on the Glasgow, Barrhead, and the Kilmarnock Joint Railway. Coal and fireclay are found in the neighbour-hood. There are manufs. of linen, rope-making, cabinet-makthread, ing, and upholstery. Tanning and currying of leather is also carried on. Pop. 5000.

Beja, the cap. of the dist B., Portugal, about 90 in. from Lisbon. There are remains of Roman walls and a gateway. Its manufs, are leather and pottery, and it trades in olive oil. has a noted cathedral and castle.

Pop. 8925.

Beja, or Boja, an African people N. of Abyssinia. between the Nile and the Red Sea, widely spread in Nubia. They are probably Hamitic, and include the Ababda, Itadendoa, Bisharin, and other tribes. They are now Mohammedons. They represent

the Blemmyes of Strabo.

Bejan, or Bajan (Med. Lat. Be janus, Fr. bec jaune, yellow beak, i.e. fledgling), a name applied to freshmen in the universities of the middle ages, still surviving in St. Andrews and Aberdeen. Bejaunia, or payment for students entering the university, was part of an opening ceremony which led to much horse-play and rowdyism.

Bejapur, see BIJAPUR.
Bejar, a fort. tn. in the prov. of
Salamanca, Spain, on the R. Cuerpo
de Hombre, 3165 ft, above the sealevel. It is surrounded by old walls; within it the ducal family of the same name has its ancestral palace, and there are many interesting churches, notably Santa Maria, San Juan, and El Salvador. There are sulphur springs, 108° F., in the neighbourhood. B. has factories of wool

flannels, serges, and cloth, and tan-ning is carried on. Pop. 9000.

Bek, Antony (d. 1310), bishop of
Durham, 1283, by the nomination of
Edward I. He was a lavish spender, and was renowned for his magnificent retinue. He was one of the royal commissioners to negotiate a marriage between the king's son, Edward, and Margaret, the infant queen of Scotland, 1290. In 1291 he was chosen for his eloquence to address the Scottish estates. In 1294 he was sent on an embassy to arrange an alliancewith Germany against France. In 1296 he took a prominent part in Edward I.'s expedition against Scotland, and received Baliol's submission in the castle of Brechin. After his return from the battle of Falkirk he appears to have lost Edward's favour, and from this time till his death was ously. 1878. Other works are: King outlined for the scotland appeared posthum. appears to have lost Edward's favour, and from this time till his death was involved in numerous eccles, disputes. In 1302 B. set out to Rome to place an appeal against Prior Richard without asking the king's leave: in consequence the temporalities of his see quence the temporanties of his severe confiscated, but he afterwards regained them. Clement V. made him patriarch of Jerusalem in 1305, and two years later Edward II. granted him the sovereignty of the Isle of Man. He died at Eltham, and was buried in Durham Cathedral. The chief authority for his life is Robert de Graystanes, De Statu Ecclesiæ Dunelmensis, ed. by Raine, 1839. Consult also W. Hutchinson's History of Durham, 1823, and J. L. Low's Diocesan History of Durham,

Bek, Thomas (d. 1293), Bishop of St. Davids. In 1269 he became chancellor of Oxford University; keeper of the wardrobe to Edward I., 1274; keeper of the great seal during Edward's absence in France, 1279. Besides his secular offices, he held many lucrative eccles. preferments. He founded the collegiate church of Llangadoc and Llandewi-Brefi, and a hospital at Llawhaden. In 1290 he took a vow to take the cross, and set out for Palestine, but it is uncertain whether he actually left England.

Bekaa El, or El Bika, the ancient Cœle-Syria; in the O.T. Hamath, the 'plain of Lebanon;' a Syrian valley lying between the ranges of the

1880.

Lebanon and Anti-Lebanon mts. is watered by the Nahr-el-Litany (Leontes) and Nahr-el-Asi (Orontes). Its length is about 90 m., and the Its length is about so in, and has an alt. of 2600-3000 ft. The Arabs use the valley for grazing-ground. The the valley for grazing-ground. The chief tm., Baalbek, is of great anti-quity, and has many remains of archæological and historical interest.

Beke, Charles Tilstone (1800-74), an English explorer, born at Stepney. He devoted his early life to the study of ancient history and philology, and in 1834 pub. Origines Biblica, Researches in Primeval History. He joined Major Harris' expedition to Abyssinia, 1840, and explored Gojam and hitherto unknown countries to He published the result of his researches in Abyssinia: A Statement

ously, 1878. Other works are: King Ously, 1870. Other works are: Aring Theodore, 1869; Idol in Horeb, 1871. Békés, a tn. of Hungary, at the junction of the White and Black Körös, noted for its agriculture, and specially the cultivation of flax. It trades in cattle and honey. 25,620. Bekker, Balthazar (1634-98), Dutch Protestant theologian, b. in Friesland; educated at Groningen and Francker; pastor at Francker, and after 1679 at Amsterdam. He pub. sev. works on philosophy, in which he was a fol-lower of Descartes, and theology, in which his freedom of thought caused De Statu considerable opposition. His De Philosophia carlesiana admonitio sincera. 1665, was written to demonstrate a relationship between Descartes philosophy and theology. His most famous work, Die Betooverde Wereld, or The World Bewitched, 1691, expresses a disbelief in sorcery. magic, and possession by and even the existence of the devil. The book is an interesting example of the early critical study of comparative theology. On its publication B. was removed from the ministry and excommunicated. Bekker, Elisabeth (1738-1804), a Dutch poetess and novelist, was the wife of Adrian Wolff. She resided in France for some time with Agatha Delten, and it was in conjunction with

> sentimental and extremely winded works in the style of Richardson. She also wrote some satirical sketches. Perhaps her most popular works were: Historic van den Heer Willem Leevend, 1785; Historic van Mejuffrouw Sara Burgerhart, 1782; Abraham Blankaart, 1787; Cornelia Wildschut, 1793-6. Her poems are uninteresting. Bekker, Immanuel (1785-1871), a Ger. classical born at Berlir texts of many of the classics from the actual manuscripts in the large

> this friend that she wrote her novels.

of philology, libraries of Europe, and independent of other printed eds. His eds. include Plato, 1816-23; Thucydides, 1821-32; Aristophanes, 1829; Aristotle, 1831; and Homer, 1858. He ed. 25 vols. of the Corpus Scriptorum 3 vols., 1814-21.

Bektashi, a name applied to class of dervishes (q.v.), estab. in 1357 by Hadji Beygtash or Bektasch. When called upon by Amurath I. to bless his soldiers he gave them the name of Yeni-Shery, i.e., new soldiers, which is the origin of the word Janissary

Bel, or Belus, the chief deity of the Babylonians and Assyrians, known to the Hebrews as Baal, the name signifying Lord in both languages.

B. corresponds to the Greek Zeus

and the Roman Jupiter.

Bektashi

Béla, the name of four kings of Hungary in the Arpad dynasty. Béla I., 1061-3, who succeeded his brother Andrew, did much to improve the commerce of Hungary by standardising weights, measures, and coinage, pacified the country, estab. Christianity securely, and introduced the representative system into the diet. Béla II., known as 'the Blind,' 1131-41, succeeded his second cousin, Stephen II., and was the son of the Pretender The kingdom was mainly Almus. administered by his wife, Helena of Siberia, at whose instigation ministers of the preceding king were massacred at the diet of Arad. Béla III., 1173-96, was grandson of Béla II., and succeeded Stephen III. He had been educated at Constantinople, and introduced many Byzantine customs into Hungary. Bela IV., 1235-70, into Hungary. Béla IV., 1235-70, grandson of Béla III., deposed and succeeded his father, Andrew II. He was a supporter of the freemen against the nobles, whose power he attempted to break. In 1241 Hungary was over-run by Mongols, and, asking aid of Frederic of Austria, Béla was compelled to yield some of his territory Later he vanquished both to him. the Mongols and Frederic.

Belalcazar, tn. of Andulasia, Spain, 50 m. N.W. of Cordova. Manufs.

woollens. Pop. 7500.

Bel and the Dragon, The Story of, an apocryphal addition to the Book of Daniel in the Bible, forming two distinct and separate stories. The original text is considered to be either Greek or Aramaic. The stories are variously received; by the Roman Catholic Church as true, forming the The stories are fourteenth chapter of Daniel in the but they are generally Vulgate: accepted as fables, written to impress the instability of idol worship.

Coming to us from different sources the writings vary greatly in detail, but the stories may be given in brief, as: Bel.—Daniel declines to worship an

image of Bel (Bual), and when the King of Babylon points out how great a quantity of food the image consumes each day, Daniel has all the entrances

Buzantinorum, and Anecdota Graca, to the temple closed first sprinkling the floor with fine ashes. In the morning footprints show that the food has been removed by the priests through a secret door. Whereupon the king has the image destroyed and the priests put to death.

Beled

Dragon.—Daniel refuses to worship a dragon, which he kills by throwing a ball of pitch down its throat. Yielding to the angry people, the king has Daniel cast into a den of lions, where for six or seven days Daniel lived unharmed. On discovering this the king has Daniel's accusers thrown in and devoured, while Daniel is released.

Belasco, David (b. 1862), American dramatist, born in San Francisco, and appeared at the Metropolitan Theatre there in 1874. Later he was stage manager of the Madison Square Theatre in New York, but he is best known for his original plays. These include Hearts of Oak, 1880; La Belle include Hearts of Oak, 1886; La Belle Russc, 1882; May Blossom, 1884; Valerie, 1886; The Wife, in collaboration with H. C. de Mille, 1887; Lord Chumley, 1888; The Charity Ball, also with De Mille, 1889; Men and Women, 1890; The Girl I left Behind Me, together with Franklin Fyles, 1893; The Heart of Maryland, 1895; Zaza, 1898; Naughty Anthony, 1899; Madame Butlerfly, of which the plot was taken from John Luther Lope's was taken from John Luther Long's novel, 1900; Du Barri, 1901; The Darling of the Gods, 1902; Adrea, 1904; The Girl of the Golden West, 1905. He is now owner and manager of the Republic and Belasco Theatres, New York.

Belbeis, a small tn. of Lower Egypt, situated on the eastern arm of the R. Nile, about 30 m. from Cairo;

pop. 11,500.

Belcher, Sir Edward (1799-1877), an admiral of the British navy, which he entered in 1812. He was present at the bombardment of Algiers in 1816. and accompanied Captain Frederick William Beechey, as a surveyor, in the 1825 expedition to explore the Bering Strait. Promoted to commander in 1829, and in 1836 appointed to command the Sulphur, he took to command the Sulphur, he took part in the war in China, 1840-41. In 1843 Belcher was knighted, and in 1852 was given command of the unsuccessful gov. expedition to search for Sir John Franklin. He became K.C.B. in 1867 and admiral in 1872. Pub. Last of the Arctic Voyages, 1855, and a number of other waster. and a number of other works.

Belchite, a tn. 20 m. S. of Saragossa in Spain. Here the Spanish General Blake was defeated on June 18, 1809, by the Fr. under Suchet. Pop. 3300.

Beled, or Balad, an Arabic word, signifying a ta., prov., or country, occurring in many eastern geographical names, e.g. Biledulgerid = Balad226

trees.

Beledug. of Fr. W. R. Niger, 1

Belem (a town in

entrance to the R. Tagus. It is noted

for its castle. Pop. 8500.

Belem, or Para, situate by the bank of the Tocantins or Para R. The cap. of the prov. of Para in Brazil, containing many splendid buildings, including a cathedral, bishop's palace, and gov. house, while there is a good harbour. The dist, is fertile and the pop. of the city about 100,000.

Belemnitella, agenus of dibranchiate molluse occurring in the Upper Cretaceous, and belonging to the family Belemitide. The species, e.g. B. mucronatus and B. granulatus, are marked on the anterior and ventral

face by a long narrow fissure.

Belemnites are a genus of fossil dibranchiate molluses representing the family Belemnitide which is closely allied to the Sepiidæ, or cuttlefish family. These fossils, which occur abundantly from the Lias to the Cretaceous, are merely the internal shell of the animal's body; they are multilocular ar portion conical

fitting into a

From a few well-preserved specimens it has been seen that they had ten arms provided with hooks, and in some cases an ink-bag has been discovered. The size of the B. seems to have varied from a few inches to several feet, and the part most often found is the rostrum.

Belfast, a city of Ireland, and a co. and parliamentary borough, is the cap. of Ulster prov. and the co. tn. of Antrim co. It is 112 m. N. of Dublin by rail, and is an important railway centre, the Great North, the No Central, and Belfast and Cour

Down railways running through R. Lagan into Belfast Lough, B. is a seaport of the first rank; passenger communication is maintained with Liverpool, Heysham, Glasgow, etc. Until recently B. was subject to epidemics, being built on alluvial deposit, and it is only by careful drainage that it has been made more salubrious. Many find buildings are to be seen in the city, including the Public Library, the new City Hall, built in 1906, and the Post Office. The old Queen's College was replaced by Queen's Uni-versity under Irish Universities Act of 1818; there are also Presbyterian and Methodist colleges, a Royal Aca-demical Institute and a Municipal demical Institute, and a Municipal Technical Institute. There are sev.

al-Jarid, or the 'country of palm of the city are classical in design, the modern, Gothic. The three main religious bodies are the Protestant Episcopalians, the Roman Catholics, and the Presbyterians. The surrounding country is well wooded and picturesque, many country scats and villas lying in the neighbourhood. B. Lough is very pretty, and round its shores have sprung up many residences of the wealthier persons in the city, forming the vils. of Whitehouse. White Abbey, Holywood, and Bangor. Early remains are found in the chalk beds at Cave Hill, the scene of a battle between the Irish and savages of the Ards, 1408. The harbour of B. is under the management of a Board of Harbour Commissioners, elected by the ratepayers and shipowners. shipbuilding trade has grown to immense proportions, the firm of Harland and Wolff being the largest. The Alexandra Dock, which was opened in 1889, is now, with all its modern improvements, one of the most commodious harbours in the United Kingdom. B. is also an important distributing port; it is the centre of the Irish linen industry, and the business headquarters of the flax spinning and weaving industry. It has many distilleries, and large tobacco and rope works. The chief exports are linen, whisky, iron ore, aerated waters, and cattle. It was created a city in 1888, and in 1897 the title of 'Lord Mayor' was conferred upon the mayor of the city. It sends four members to parliament. The origin of the tn. and of its name are alike lost in obscurity. A castle is said to have been built by John de Courcy in 1177. and destroyed in 1316 by Edward Bruce. At the beginning of the 16th century B. was no more than a vil., owned by the O'Neill family, who were in opposition to the reigning 1552 Hugh O'Neill

to his king, and re-nd fortress of B. and

city. Situated at the entrance of the the surrounding lands, but lost them R. Lagan into Belfast Lough, B. is a in 1571 to Sir Thomas Smith, after whom Sir Arthur Chichester had them. B. received a charter in 1613, and under Wentworth's wise policy started on a career of prosperity and progress. The cotton manuf. was begun in 1777, and the shipbuilding trade in 1791. There have been various riots in the city owing to the intensity of the religious opposition of the different sects, notably in 1880, 1884, and 1907. The pop. in 1901 was 349,180.

Belfast, a city and scaport of Maine, U.S.A., on the W. side of Penobscot Bay, Waldo co. Industries, shipbuilding and manufacturing. Pop. about 5000.

Belfast Lough, an inlet on the E. coast of Ireland, situated between the

depression called the Trouée de B., between the Vosges and the Jura, 117 m. N.E. of Dijon. It was ceded to France by Austria at the Peace of Westphalia in 1648, and fortified by Vaubon. In the Franco-German War of 1870-1 it withstood a siege of three months, capitulating with inilitary S.W. of Köslin, on the Perhonours on Feb. 16, 1871, and was There is an old castle and large restored to France at the Peace of and cattle markets are held. The fortifications have about 8000. since been enormously strengthened. Pop. 91,763.

and 'peace'). It was originally a tower used for purposes of defence, later a watch tower, or one from which an alarm bell was rung, and finally a bell-tower, usually confined toeccles, buildings. It generally forms part of the church, but is sometimes a separate building, as with the Italian campaniles. Such belfries are found in England at Evesham, Berkeley, Beccles, and sev. places in Corn-vall and Scotland, where the church stands in a glen, the B. then being placed on the hillside above it. Municipal belfries, attached to the Town Hall, are common on the Continent, as at St. Quentin, Douai, Brussels, etc., and are also found at Glasgow and Aberdeen. The famous B. at Bruges, with a carillon of fortyeight bells, is part of 'Les Halles.' The framework of a B. is made to rest either upon stone corbels or upon recesses in the wall, in order to miti-gate the effect of the vibration upon the masonry. The higher the bells are hung the more this is felt.

tns. of Antrim and Down. It is an estuary of the Lagan, and is 7 m. (ii. 4); among them we find one name, wide at its mouth. It extends 15 m. the Atrebates, the same as that of a inland, and has the tns. of Belfast, Carrickfergus, Holywood, and Bangor on its shores.

Belfort, cap. of the ter. of the same name, the fragment of the dept. of Haut-Rhin left to France at the cession of Alsace to Germany in 1871.

When Cassar invaded S. Britain ha

When Cæsar invaded S. Britain he owner Cesar invaded S. Britain he found that part of the is. occupied by B., that is, by tribes of German origin (Bell. Gall. v. 12). The whole southern coast from Suffolk to Devonshire was probably occupied by Balvie tribes

Belgic tribes.

Belgard, a tn. of Prussia, in the prov. of Pomerania, situate 16 m. S.W. of Köslin, on the Persante. There is an old castle and large horse

Belgaum, or Belgam, a dist. of Bombay in British India. The tn. and cap. of the same name is situate Belfry (Old Fr. berfrei and low Lat. and cap. of the same name is situate belfredus, a term of Teutonic origin 2500 ft. above sea level, and contains compounded of the words for 'bell' an old fort. The dist. is generally productive and cotton-cloth is manufactured.

Belgiojoso, a tn. of Northern Italy, 8 m. E. of Pavia. Pop. 4000.
Belgiojoso, Christina, Princess of (1808-71), an Italian patriot and authoress. Born at Milan, she was the daughter of the Marquis Trivalzio, marrying the Prince of Belgiojoso. In 1820 the moved to Paris where the 1830 she moved to Paris, where she warmly took up the cause of Italian liberty. In 1848 she supported the Italian revolution, and at her own expense raised a troop of volunteer patriots. On the defeat of her party in the following year her property was confiscated and, an exile, she returned to Paris, where she continued her literary work. She died at Milan. She founded and edited sev. periodicals, in addition to contributing to others, and wrote several works.

Belgium, one of the smallest Euro-

pean countries, ranking sixteenth in point of area and eighth in accordance the masonry. The higher the bells are with population. It formed part of the more this is felt.

Belgæ, the general name given by until, by the Congress of Vienna, it Belgæ, the general name given by until, by the Congress of Vienna, it Cæsar to the different tribes who inhabited the N. of Gaul, between the sea on the W., the rivs. Matrona (Marne) and Sequana (Scine) on the S., and the Rhenus (Rhine) on the E. it is bounded on the N. by the But it is not well determined how far perhaps the Treviti, on the banks of the Moselle, were included. Cæsar also (Bell. Gall. v. 24) uses the term and Rhenish Prussia, and the N.W. by the North Sea. It lies between lat. also (Bell. Gall. v. 24) uses the term (Bellowaei (Beauster) of the area of Great Britain. Its vais) were the most warlike and greatest length is a line drawn from numerous Belgic tribe in the time of divided into nine provs., Antwerp, Brabant, E. Flanders, W. Flanders, in its course the waters of the Sambre Hainault, Liege, Limbourg, Luxembourg, and Namur. Its cap. is Brussels. In general, B. is a very flat key lieuport and which is navigable for country, having few elevations, and about 26 m. In addition to these the greatest height to which any of these elevations rise is not more than 2000 ft. In the S. and E. it takes more the general aspect physically of Northern France, while in the N. and N.W. it resembles Holland. A continuation of the Ardenne uplands separates the river valley of the Meuse and the Moselle, and extends in a north-easterly direction into Prussia. The provs. of Liege, Luxembourg, and Namur are divided up by bourg, and Namur are discussions, by numerous ravines and streams, by vegetation is poor and the country in this part is covered with dense forests. which become less extensive as approach is made to the coast. northern and western provinces are. however, the boast of the people, both because of their pleasant aspect and their great fertility. These provinces consist of well watered and extensive plains, which are easily culti-The provs. bordering the sea partake of the same nature as the land of Holland. In many places the inun-dations of the sea are only kept back by the dikes which have been built and which are called locally 'bolders. Nearly 200 sq. m. of land are thus artificially protected from the inroads of either the sea or rivers. The coast is gradually undergoing change, and northward from Nieuport the sea is gradually encroaching upon the land, while southward of that tn., towards the Pas de Calais, the sea is gradually receding. Much of the sandy and marshy land which was held to be of little use has been gradually reclaimed. until at the present day whole colonies of people are living on and cultivat-ing land which not very long ago was held to be almost useless and irreclaimable.

B. is noted for the abundance of its good waterways. These waterways fall into two great divs., the navigable rivers such as the Scheldt and the Meuse and the magnificent system of canals. The two great rivs. of B., the Scheldt and the Meuse, enter that country from France where they have their source and enter the sea in B. They are navigable throughout the whole of their course in B., and are supplemented by a number of tribu-taries which enter them during their course through B., and some of which are themselves navigable. The course of the Scheldt through B. is about 110 m., its prin. tributaries being the Ruppel, the Dender, the Durme, and the Lys. The Meuse has about 115 m. of navigable water in B. and receives

magnificent systems of natural water-ways, the country is also supplied with a magnificent canal system. These canals number forty-four, and have an entire length of over 500 m. The chief canals are from Bruges to Ostend, from Brussels to Charlcroi. from Brussels to Willebroeck, and from Ghent to Bruges. The largest canal is 16 m. in length, and runs from Brussels to Charleroi. The climate of B. is very similar to that of England: it is, however, a little colder in winter and hotter in summer. The S.E. part is much to be preferred to the damp and hazy atmosphere of the N. and N.W. Frost is usually not encountered until the middle of October nor after the middle of April. The mean annual temp. is about 50° F. while the mean annual rainfall is about 28 in. or about 3 in. less than that of London. The rainfall, however, varies from an average of 27 in. in the W. to a little over 40 in. in the E. of the country. The agriculture of the country is well looked after by a special committee which is appointed for that purpose. A central committee supervises the whole, while in the provs. there are smaller committees who superintend and report annually on the condition of agriculture in the various provs. During every five years a great exhibition of horses, cattle, agric. implements, and produce is held at Brussels at which many prizes are given, and in this way the best interests of agriculture are looked after. Many local exhibitions are held annually in the country. About 7,000,000 acres of land are under cultivation in B., most of this land being in the hands of small holders who cultivate about two to three acres of land. A great number of women are employed in agric, work, the ratio of men to women being as ten is to six. The agric, implements used are very primitive, practically all the work on the small holdings is done with the spade, while apart from agric. work a great deal of the land is devoted to gardening. The chief cereal crop cultivated is rye, wheat and oats being also fairly extensively grown. Chicory, flax, leguminous plants, hemp, madder, and beet are also common crops. Tobacco is not now grown as extensively as heretofore, but is confined practically to the provs. of Flanders and Hainault. A crop which is increasing every year is that of beet, which is grown more and more for the purpose of extracting the sugar. The breeding of horses is also a great industry, and for the

purpose of improving the breeds, a £16,622,880, minerals government stud of horses has been silver £7,258,800, r government stud of horses has been established at Teroneren. On the coasts there are very valuable fisheries, but this industry was much hurt by the admission of foreign fish into the B. markets duty free. The mineral wealth of B. is also of great import-The prin. minerals are lead, copper, zinc, marble, granite, slate, iron, and coal. The coal is found principally in two basins, the eastern and the western. The eastern basin is about 100,000 acres in extent, while the western basin is more than to and imports from in 1910, which double that size. The chief centres of the western basin are Hainault and Namur, while the eastern basin has its centre in Liege. B. next to Great Britain has the greatest amount of coal of all the European nations. In conjunction with the coal deposits it has also rich deposits of iron. coal found in B. varies from anthracite to the richest of gas coal; the mines are under the general supervision of the minister for the interior, who administers them with who nuministers them with the help of a corps of engineers who are appointed by him to the various mining dists. There are upwards of 200 mines in B., more than 50 per cent. of which are in full working order, and provide employment for over 100,000 people. The value of the annual output of coal is £16,500,000. The manuf. of iron is also of immense importance, there being 500 ironworks in the country, and the annual value of iron output is estimated at over £7,000,000 per annum. product of marble, freestone, granite, and slate is also of great importance to the country; the black marbles which are produced in some parts of the country being of great value. There are in addition numerous lead, zinc, copper, and steel works through-out the country which find employ-ment for many of the inhabs., and most of which are increasing in value Glass is also fairly exevery year. tensively manufactured The chief manufs. of B. are linen,

woollens, cotton, silk, lace, and leather. Flax is one of the most important products, and the linen manufactories have their centre in Flanders, where they employ about 350,000 people. The lace industry is not so important as it once was, but still gives employment to a large number of people. The woollen industry has its centre round Ghent and Ypres, and employ a great number of people. The chief centre of the cotton trade is the tn. of Ghent, while the manuf. of metal is chiefly centred in the tns. of Liege, Ghent, Charleroi, and Mons. The prin.

£7,730,060, rubber £600,000, hides over £5,500,000, flax over £4,000,000, coal over £4,000,000, over £4,000,000, coal over £4,000,000, diamonds nearly £400,000, cotton £3,399,800. The prin. exports were returned, in millions of pounds, as, approximately, wool 14.5, rubber 5.1, wheat 5, flax 4.8, rail and tramcars 4.5, diamonds 3.9, zinc 3.6, hides 3.6, coal 3.1, iron and steel bars 2.9, iron and steel 2.7. The commercial intercourse of B. and Great Britain is indicated by the amount of exports to and imports from in 1910, which were then returned as, imports from, £19,195,174, an increase of over £1.000.000 on the previous year, and exports to £17,838,334, an increase of nearly £1,500,000 on the previous year.

The pop. of B. was given in the same report as 7,382,572, the returns same report as 7,382,572, the returns of the census of Jan. 1, 1911, not being known. The pop. of the two largest towns was, Brussels, 720,181, and Antwerp, 402,328. The religion of the country are results in Roman Catholic, and all results are required to the constant of the country are all and all ministers properties of the state of the s ministers, no matter of what denomination, are paid by the state. The kingdom is divided into six Roman Catholic dioceses; there are also a great number of conventual houses. The number of Protestants is approximately 15,000, and the number of Jews 3000.

Language.--The languages spoken in B. are Fr. or Walloon, a dialect of ant. France, and Flemish or Dutch. Fr. is the language of the educated and upper classes, but is generally understood throughout the kingdom. The Fr. dialect prevails in the S. and E., the Flemish or Dutch in the provs. of Antwerp, Brabant, Flanders, and

Lembourg. Gov. and constitution .- The gov. is based upon the strictest liberal principles; all power emanates from the people. Justice is free to all, the press is free, the people are surrounded on every side by safeguards designed to ensure to them the proper gov. of their country and their own personal liberty and freedom of con-The gov, is a constitutional and hereditary monarchy. The legislative power is vested with the king, the chamber of representatives, and the senate. Judicial power is exercised freely without dependence upon any authoritative influence and provincial affairs are governed by pro-vincial councils. The royal succession is in the direct male line in order of primogeniture. The king can do no wrong, his person is sacred, and the imports of B. were returned in the ministers are responsible for all his year 1910 as wool £16,774,400, wheat acts. He cannot suspend or dispense

offices, and he commands both army and navy. He can declare war, make peace, and conclude offensive and defensive alliances and commercial treaties which he must communi-normal schools, mil cate to the chambers. He has power navigating schools. in default of male heirs of nominating his successor with the consent of the chambers. He can only appoint one regent, and under a regency the con-stitution cannot be altered. The legislature meets annually in November, and must sit for forty days. The king has the power of dissolving them, and on dissolution a fresh election must take place within forty The chamber of representatives is chosen by the people, and consists of one member for every 40,000 inhab. The members receive a monthly payment of £16 13s. 4d., and are elected for four years, half of them retiring at the end of two years except in the case of a dissolution, when they all retire. This chamber has also the right of nominating the members of the senate. In order to be elegible for the senate it is necessary to be a Belgian, or to have received the grand nationalisation, and to pay at least £84 in direct taxation. Lists of eligible members are drawn up by provincial councils, and the lists are submitted to the chamber of representatives. This chamber consists of half as many members as the chamber of representatives. They are elected for eight years, half retiring at the end of each four years.
They receive no payment for their
services. The senate is elected by
the general electors. To be a general elector it is necessary to be a Belgian by birth, or to have received the grand nationalisation, and to pay 33s. 4d. in direct taxes. The king has the right of appointing his own ministers. They have right of admission to the chambers, but no right to take part in deliberations unless they are members. They can be dismissed at pleasure and can be accused by the house of representatives before the court of cassation. For civil purposes the provs. are divided into 26 arrons., 204 cantons, and 2528 coms. arrons, 204 cantons, and 2525 coms.

They are divided for military purposes into 41 arrons., 303 cantons, and
of Utrecht, 1711. With the beginning of the rule of Charles V. we get

Education.—The gov. have shown
their desire that education in B.

Education.—The gov. have shown their desire that education in B. should attain a high standard. The educational institutions are divided into four sections—primary, middle, superior, and special. In addition who, by meaning the of Philip II., normal schools have been built for the through his special training of efficient teachers. Alva, tried The primary and middle schools are proposed to the primary an

with the laws. He has power to gov., and are open to frequent nominate to all civil and military inspection. The superior institutions are the four great universities of Ghent, Liége, Brussels, and Louvain. The special schools are chiefly engineering and mining schools, normal schools, military schools, and

navigating schools.

B. history.—The history of B. as a kingdom can only be said to date from the time of the Congress of Vienna, but its history as part of the Netherlands goes back to the time of the Romans. In the Rom. period it formed part of Gaul, and was distinguished by the name of Gallica Belgica. It we Celtia tribes

Celtic tribes, many traces o origin. By the into this part o

tribes were greatly increased, and it is the history of the Franks in Europe that really forms the early forms the Littory history of the Netherlands. the country was divided into a num-ber of independent duchies, bishopper of independent duences, bishop-ries, and lordships, but the chief noble in the Netherlands for a very con-siderable time was the Count of Flanders. Towards the end of the 14th century the line of Flemish counts became extinct, and their ter. passed into the hands of the dukes of Burgundy. Then followed a period of Burgundian oppression, during which all liberty was suppressed, but during which also the wealth, pros-perity, and industry of the country still continued to flourish in spite of som continued to hoursh in spite of the suppression of its free institu-tions. In 1477 the daughter of Charles the Bold, Mary, married the Archduke Maximilian, who in 1493 became the emperor of the Holy Roman Empire. In this way began the connection of the Notherlands with the bouse of Austrie Who with the house of Austria. The Netherlands was passed on by the emperor to his son Philip, who mar-ried the daughter of Ferdinand and Isabella of Spain, and was the father of the Emperor Charles V. Dying considerably before his father, Philip left the Netherlands to his son, by whom it was incorporated with the Spanish crown, and who began the connection of the Netherlands with

During the

The primary and middle schools are progress of the Reformation. The chiefly under the control of the northern provs. broke away, but B

remained under Spanish rule. For a to zealous and successful imitation short time after 1598 an independent of the citizens of the capital of gov. was set up there, but it failed owing to the death of the Archduke Albert, and the country reverted to the crown of Spain. In the century which followed, dist. after dist. was ceded to France during the wars with Spain and following the War of Devolution. By the Treaty of Ryswick (1697) a great amount that had been lost at Nimeguen (1679) was restored. By the Treaty of Utrecht which concluded the War of the Spanish Succession, B. was ceded to Apothia and arranged. Austria, and renewed her connection with that house, a connection which had begun in the 15th century; in future she was known as the Austrian Netherlands. During the century which followed, the fortunes of the Netherlands underwent Austrian many vicissitudes. In the War of the Austrian Succession B. was overrun by France, but all conquests were restored by the Treaty of Aix-la-Chapelle of 1748. The Seven Years' War left B. practically unmolested, and under Maria Theresa it experienced halcyon days. But Joseph II., the enlightened despot, roused anger by his reforms and danger by his proposal to open the R. Scheldt, and before his death B. had declared itself an independent nation-'United B.' Leopold II. promised an amnesty in return for surrender, but the Belgians held out and were subdued by an overwhelming Austrian army. Then came the days of the Revolution and Napoleon. The battles of Jemappes and Fleurus placed B. in the hands of the Fr., the treaties of Campio Formio (1797) and Luneville (1801) confirmed that possession, and for the rest of the Napoleonic period B. became to all intents and purposes an integral part of France, ruled by the Code Napoleon. After the abdication, 1814, B. again passed to Austria, and was administered by an Austrian governor-general, but in 1815 it was united to Holland, and William Frederick of Nassau became king of the Netherlands, taking the oath in Sept. 1815. It was an unfortunate alliance, the Dutch and the Belgians differed in nearly every respect; in religion, in manners, in language, in customs. The Belgians were almost immediately relegated to a very back seat in the gov., and a great feeling of discontent spread throughout the whole country. Nevertheless the prosperity of the country, its industries and its commerce increased, but even this did not satisfy the Belgians. The Revolution of Paris of 1830 was successful: the revolutionary spirit seized the Belgians, and the cry 'Imitons les Parisiens' roused them

France.

The Belgians again declared in favour of independence, they were successful in keeping at bay the forces of the Dutch sent against them, and a suspension of hostilities took place while a congress of the five great powers was held in London. Here it was agreed that the country of B. should be independent, that it should be a constitutional monarchy, not a republic, that the Orange Nassau family should be permanently ex-cluded. A candidate was chosen who declined to accept office: a regent was appointed, but failed to allay the unrest. The election of Leopold of Saxe-Coburg was the signal for a fresh Dutch invasion, which, however, retired before the superior strength of a Fr. army. The subsequent attempts to bring about a settlement did not come to an end until 1833, when a convention was signed by all parties. B. seemed

casus belli Lembourg

and Luxembourg, which by the convention had been given to Holland, as if they were in reality a part of its ter. The crisis was terminated by the action of the great powers, who reduced B.'s share of the national debt

and partitioned in dispute. The ountry was again volutionary spirit

of 1848, but after 1850 the constitutional party began that series of reforms which have gained for B. the position of one of the freest countries in Europe. The question of Luxembourg threatened in 1861 the peace of Europe, and B. took part in the congress which prevented war breaking In 1870, on the outbreak of out. hostilities between France and Germany, B., fearing invasion, mobilised her troops, but her neutrality was recognised and left inviolate by both parties In 1885 the Congo Free State was acknowledged to be under the presidency of the King of B., Leopold II., who had succeeded his father in 1865. The management of the state has given cause for much bitterness, and has led to a number of scandals. Leopold II. died in 1910, and was succeeded by his nephew, King Albert. Pop. about 8,000,000.

Belgorod, or Bjelgorod (white town), a tn. of Kursk gov., Russia, on R. Donetz, 73 m. S. of Kursk. It takes its name from a neighbouring chalk hill. The old town is surrounded by a rampart and ditch, and the new town by palisades. B. is an episcopal seat, and has two monasteries and thirteen churches. There wax, bristles, and hemp, and the He became an eminent military surrounding country produces much engineer, and wrote many works on fruit. Three large fairs are held here annually. Pop. 26,100.

Belgrade, cap. city of Servia, at the confluence of the R. Save with the Danube. Both rivs. are here broad and navigable, and fortifications extend from them to the brow of a ridge about 150 ft. high. The city is rapidly becoming western in appearance; the Turkish quarters have vanished, and only one Mohammedan mosque is left. The new part of the city is handsome and well built, with broad streets, beautiful gardens, a modern water-supply, and electric tramway, and numerous churches and public Most of the merchants buildings. carry on their trade in wooden stalls in the streets. The citadel stands on a promontory 100 ft. high, jutting into the Danube. The climate ting into the Danube. The climate is very variable, with great extremes of temperature. The manufs. of B. are still trilling, but include arms, cutlery, saddlery, silks, carpets, cottons, and leather, but the city has a large trade as the commercial exchange between Turkey and Austria. The but of words are readed. The chief exports are wool, skins, and hides, wax, honey, tan-bark, silk, cattle, pigs, and timber; while hardware, salt, pottery, and agric. produce is imported. The surrounding country is very beautiful, but the city itself is dirty in the extreme. It has had an eventful history, being besieged in 1456 by the Turks, who were defeated by John Hunyady: taken by them in 1522, and by the imperialists in 1688. It was recaptured by the Turks in 1690, and in 1717 surrendered to Prince Eugene. The Turks regained it in 1739, but lost it to Austria in 1789. It was restored to Turkey in 1791, and the Turkish garrison withdrew in 1867. Pop. 80,000.

Belgravia, a fashionable and resiitself is dirty in the extreme. It has

Belgravia, a fashionable and residential district in the West End of London, lying to the S. of

Square, and adjoining Hyde

Bélial (correctly Belial),

1761), the son of a Fr. officer; left an the impatience of his troops to give orphan, he was adopted by another battle, against his own judgment, at

are manufs. of leather, soap, woollens, Fr. officer, who brought him to France. military

Belief.

to denote gestion, or fact in very much the same sense as the words faith and trust. Psychologists give various definitions of the term, and it would appear that while the acceptance of a certain association of ideas or reputed circumstances is required, it is not necessary that they be true. The basis of B. has been given as the probability of a chain of ideas: the error, when the B. is proved erroneous, being the assumption of a false statement in the evidence of truth. B., however, must not be confounded with the word knowledge, as predisposition and suggestion have undoubtedly a strong suggestion have undoubtedly a strong bearing on the judgment of a connection of ideas; while lack of intellectual ability or use or the interposition of another B. as a truth, are means by which a true logical conclusion may be missed. In the Christian religion faith and B. are particularly used as acceptance of and full reliance in the teachings of the Bible and more especially Christ. the Bible, and more especially Christ. Books of reference: Bain, The Emo-tions and the Will; Hume, Inquiry; James, Psychology; Mill, Analysis of the Phenomena of the Human Mind; Spencer, Psychology; and Locke, Essay

Eeligrad, the Turkish and Slavonic name for Berat (q.v.).

Visarion Belinsky, Grigorievitch (1811-48), a Russian man of letters, born at Chembar, gov. Penza; educated at the Moscow University. B. was one of the greatest of Russian critics. and has been called the 'Aristarchus of Russian literature,' The Survey of Russian Literature since in Eighteenth Century appeared in 1834. A complete ed. of his works was pub. in 12 vols. in 1859-62.

Belisarius, a famous Byzantine

n of the Emperor · bornat Germania,

505. He is first pound Hebrew word, meaning 'that' mentioned about 525, during the war which is without profit or worth. It between the Byzantine empire and is often treated by the translators of the Bible as if it were a proper name, bodyguard, he held a command in an and has certainly acquired a kind expedition into Persian Armenia. It the Bible as if it were a proper name, and has certainly acquired a kind expedition into Persian Armenia. It of personification by usage in such phrases as 'a son of B.,' and in the passage. 'What concord hath Christ with Belial?'

Beliapatam, atn. in Malabar dist, of Madras presidency, British India, standing on the riv. of the some name, tam. from Cannanore.

Belidor, Bernard Forest de (1687 or 8-1761), the son of a br. officer: left, and the impatience of his troops to give 233Bell.

Callinicum on the Euphrates. He was defeated and recalled to Constantinople, where he married Antonia, a wealthy but profligate woman. Here he supported Justinian against the conspiracy of the 'Green' party, who were attempting to make Hypatius emperor. In 533 he was sent into Africa to recover the imperial provs. held there by Gelimer, King of the Vandals. He landed in September at Caput Vada, and advanced to Decimum, where he gained a victory. He then entered Carthage, from which Gelimer fled towards Numidia, and again defeated the enemy. The king was finally captured at Mt. Pappua, and after sending contingents to reduce Sardinia, Corsica, and the Balearic Isles, B. returned to Constantinople, where he was honoured with a triumph, and a medal was struck to commemorate his victories. In 535 he was made sole consul. Later n that year he set out to recover Italy from the Goths. Landing at Catania in Sicily, he soon conquered the is., and crossed to the mainland. In 536 he took Naples and occupied Lower Italy, and at the end of the year entered Rome by amicable arrangementy During 537 he

Vitiges, the being abando.

peing abando Vitiges retired to Ravenna. Narses was now sent from Constantinople with a reinforcement, but owing to a misunderstanding between B. and himself, resulting in the devastation of Milan by Braias, nephew of Vitiges, Narses was recalled, and B., now commanding both armies, refused to carry out a treaty sent from head-quarters, leaving Vitiges with the title of king and the provs. N. of the Po. In 1540 he captured Ravenna, and took Vitiges prices but were and took Vitiges prisoner, but was recalled by Justinian before completing his conquests. During 541-2 he was engaged in a campaign against Persians, who had captured Antioch, but was recalled, degraded, and fined, on account of misrepresentations of his conduct. In 544 the Ostrogoths, under Totila, again invaded Italy, and B. commanded the expedition against them. In spite of an insufficient force, he kept the bar-barians at bay and regained posses-sion of Rome, but no reinforcements being sent him, he resigned his position, which was filled by Narses, and returned to Constantinople, where he stayed in retirement till 559. In that year he defeated the Bulgarians, who were threatening Constantinople. In

565, leaving one daughter. Joannina. His character for bravery, generosity, justice, and fidelity, and his talents for war, are only stained by his sub-

serviency to his wife. Belize, see Balize.

Beljame, Alexander (1842-1906), a Fr. writer, Lorn at Villiers-le-Bel, Seine-et-Oise, died at Domont. He was a great student of Eng. literature, and lectured on the subject at the Sorbonne: he became Clark lecturer on Eng. literature at Trinity College, Cambridge, 1905-6. His chief work is Le Public et les hommes de lettres en Angleterre au XVIIIe siècle, 1881.

Belknap, Sir Robert, was chief justice of the Court of Common Pleas in the 48th year of Edward III.'s reign (1374). He continued to hold this office until the 11th year of the reign of Richard II. (1388), when he was removed for having, though with a remarkable protest, signed an affirmative to the question of Edward III., 'Whether he might by his regal power revoke that was acted in par-liament.' In the succeeding parliament all the judges were arrested in Westminster Hall on a charge of high treason. The lord chief justice of the Court of King's Bench was executed, and the other judges, with B., barely escaped with their lives, through the intercession of the queen. (Fuller's Worthies of England.)

Bell, a hollow, metallic instrument, in shape resembling a reversed cup, suspended by its apex or neck, and having in its interior a swinging clapper, hammer, or loose ball.

Bell founding.—Bs. are made of a kind of bronze, known as B.-metal (q.v.) which is a mixture of copper and tin. In early times, Bs. were not cast, but were made of thin plates of hammered iron, riveted together. The B. called Clog · an · eadhachta Phatraic the bell of Patrick's will ') at Belfast, mentioned in the Annals of Ulster as early as A.D. 552, is quadrangular in shape and of this primitive type, as are also some of the Scottish Bs. (Consult Illustrated Catalogue of the Archwological Mu-Joseph Anderson, Scotland in Early Christian Times, 1881.) The small Bs. discovered by Layard in the palace of Nimrod, on the site of the anct. city of Nineveh, are made of copper and tin, in the proportion of 10-1. During the middle ages the quantity of copper used was much reduced, and in Henry III.'s reign the proportion was 2-1. In modern times. the approximate ratio is 4-1. It was 563 he was imprisoned on a charge of formerly thought that a mixture of conspiracy against Justinian, but his silver with B.-metal sweetened the innocence was soon estab., and he was tone, but it has been proved that released after six months. He died in silver in any quantity is injurious to

a less sustained vibration. The casting of Bs. in England was originally practised in monasteries. It was then adopted as a trade by itinerary artificers, who wandered about the country casting Bs. in places that required them. By the time of the Reformation there were B. foundries in York, Norwich, Bury St. Edmunds, and other places. The art of casting has made little advance in modern times, and no Bs. of modern manuf. are better than those cast four hundred years ago. The B. is first designed on paper; a core is then constructed of brickwork, covered with soft clay, which is moulded to the exact form of the interior of the B. to be cast. Over the core is fitted a soft model of the future B. Then a third heavy shell, moulded to the required shape, is placed over the model; the model is removed, and molten B.metal is run into its place and left to cool until it has set. The quality of the tone depends not only on the composition and weight of the metal, composition and weight of the metal, but on the shape and proportions of the B. The following are recognised to be fair proportions for a B.: the thickness of the edge to be one-tenth of the diameter, and the height twelve times its thickness. The prin. B. foundries in England at the present day are: Messrs. Mears & Stainbank, Whitechapel; Messrs. Taylor & Co., of Loughborough, who gast the Great. of Loughborough, who cast the Great B. of St. Paul's Cathedral, 1881; and Messrs. Warner & Co., Cripplegate. History of bells.—Hand-Bs. or

History of bells.—Hand-Bs. or cymbals were used in early times for religious ceremonies. They were employed by the Egyptians at the festival of Isis. Aaron and the Jewish high priests wore golden Bs., alternating with pomegranate knobs on the blue robe of the chood. The Gks. used Bs. in their camps; and the Roms. employed them to announce the hour of bathing, and as a signal to begin selling in the market-place. The introduction of B. ringing into the Christian Church has often been ascribed to Paulinus, Bishop of Nola in Campania (A.D. 353-431), probably because nola and campana are late Latin words for B.; but the date of their introduction is a century later. They were introduced into Gaul about

the tone of a B., great or small. Bs. appears that Bs. were not used in have also been made of antimony, brass, steel, gold, and thick glass. Bs. ligious purposes till the 11th century, cast of steel have a beautiful tone but tively small, and were often only hand-Bs. The Clog-an-cadhachta Phatraic, already mentioned, is 6 in. high. traic, already mentioned, is 6 in. high, 4 in. deep, and 5 in. broad. The B. presented by a king in the 11th century to the church of Orleans, was considered remarkably large in its age, and it weighed 2600 lbs. Larger Bs. began to be cast in the 13th century. The largest B. in the world is the Tsar Kolukol of Moscow, which was cast in 1733. It is 21 ft. high, 21 ft. in diameter, and weighs 432,000 lbs. In 1737 owing to a fire it fell and the in diameter, and weight 452,000 lbs. In 1737, owing to a fire, it fell and sank into the ground; in 1837 a chapel was excavated below it, of which it forms the dome. Among other large Bs. are the Amarapoora, in President of the 1900 lbs. There are in Burmah, 260,000 lbs.; those at Rouen and Vienna, each about 40,000 lbs.; Montreal Cathedral, 28,560 lbs.; Big Ben ' of the Houses of Parlia-

'Big Ben' of the Houses of Parliament, 30,000 lbs.; and the Great B. of St. Paul's, 11,470 lbs.

The uses of bells.—Bs. have been chiefly associated with ceremonies of a sacred character. They were at one time consecrated, had sponsors, were sprinkled with water, anointed, and received names, in fact, a complete baptismal service was held over them. Many inscriptions on old Bs. are of Many inscriptions on old Bs. are of great interest, and show that super-stitious ideas prevailed as to the power of Bs. over evil spirits, in dispower of Bs. over evil spirits, in dispelling storms, and putting an end to tamine, pestilence, etc. The Passing B. was rung in order to terrify evil spirits from the dying body, as well as to admonish the living. By the 18th century tolling took place after death, a custom which is still maintained. The Sanctus or Sacring B. was rung during the celebration of mass. The Pardon B., of pre-Reformation date, was tolled before or after service to call men to pray for the forgiveness of their personal sins. other Bs., connected with religious services, are the Gabriel or Ave B., the Vesper B., and the Bridal or Marriage B. Bs. were also employed for secular purposes. They were used as a call to arms, as a warning of danger particularly at flood and one access. ger, particularly of flood and fire, and by watchmen at night. The Curfew B., supposed to have been introduced by William the Conqueror, was rung at eight o'clock as a warning to men They were introduced into Gaul about a teight o'clock as a warming to men a.D. 500. In the 7th century, Bede that it was time to extinguish their mentions a B. brought by Benedict from Italy for his abbey at Wearmouth, and says Bs. were used at Whitley Abbey at the time of the death of St. Hilda, 680. Pope Sabinianus ordained the ringing of Bs. to announce canonical hours in 604. It lock), as a signal to the shepherd.

The hanging of Bs., with wire connec- Alphabetics, 1867. tions, in houses was adopted during the 18th century, but has been re-placed by the electric button.

church towers and belfries a number of Bs. are kept, so that changes can be rung on a peal. Four Bs. give 24 orders in the Church of England, changes, eight give 40,320, while twelve give 479,001,600 changes. The held eight army chaplaincies. In 1789 ringing of Bs. so as to admit changes he was appointed chaplain of Fort was at one time a fashionable art, for Saint George in Madras, and superthe School of Recreations or Gentleman's Tutor has a chapter on 'Advice to a Ringer.' The first known work to a Ringer.' The first known work the military. Being unable to obtain on the subject is Tintinnologia, pub. properly qualified assistants, he at by Fabian Stedman in 1668. The church towers and belfries a number spent some years as a tutor in Viron the subject is Tintinnologia, pub. properly qualified assistants, he at by Fabian Stedman in 1668. The muffled peal is effected by covering the pupils through themselves, which half the clapper with a cap of leather. The art of pealing Bs. has been carried to great perfection in England. Consult: Gatty, The Bell, 1848; C. Pearson, Ringer's Guide to the Church which received scant attention. Bells of Devon, 1888; North, English Joseph Lancaster founded a school on Bells and Bell Lore, 1888; Briscoe, the principles, which he developed, Curiosities of the Bells among the left a fortune of £120,000 to educa-Griostices of the Beijty, 1883; Pesse, Notes on the Uses of Bells among the Greeks and Romans, 1904; Dr. Raven, Bells of England, 1906; The Quarterly Review, Sept. 1854; Glossary of Technical Terms, 1901. Schiller's Song of the Bell and Poe's Bells are famous poems on the subject, and there are numerous references to Bs. in English literature.

Bell, Alexander Graham (b. 1847), American scientist and inventor. Born on March 3, in Edinburgh, Scotland, he was educated at the Edinburgh High School and the British and foreign universities.

Alexander Melville 1905). Scottish-American education- Park. alist, born in Edinburgh, Scotland, on Bel 1905). Scottish-American educationalist, born in Edinburgh, Scotland, on March 1. Lectured on elocution in Edinburgh University from 1843 to born in Alexandria: educated in Eng-1865, and from 1865-70 at the university of London. In 1870 he removed to Canada, becoming instructor of elocution at Kingston, Queen's self to journalism, having already College, and in 1881 he moved to estab, a connection with the Times. Washington, D.C. He devised the In 1880 he was one of the founders of system of 'visible speech,' by which deaf-mutes are taught to speak. Has famous as a Times correspondent written and pub many papers on during the Arabi revolt of 1882. In elocution and other educational sub-

These Bs. or crotals are also attached jects, including Principles of Speech to the front horse of a sleighing team and Elocution, 1849, and Visible in America and Northern Europe. Speech: The Science of Universal

Bell, Andrew (1753-1832), a Scottish e 18th century, but has been reducationalist, born at St. Andrews. aced by the electric button. Scotland, on March 27, and edutringing of bells.—In many Eng. cated at the university there. He left a fortune of £120,000 to educational institutions in Scotland, and was buried in Westminster Abbey.

Bell, Sir Charles (1774-1842), educated at the High School, Edinburgh; became a surgeon under his brother John (q.v.); lectured on anatomy when quite young; in 1804 came to London. Appointed surgeon to Middlesex Hospital, 1814, and raised that institution to the highest repute. Was interested in military surgery, when wounded troops came home from Spain, and visited Waterloo immediately after the battle, where he did Edinburgh and London universities. Removing with his father, Alexander the wounded great service. From Melville B., to Canada in 1870, he being 1821 his first well-known paper on the 'Nervous System,' read before the the 'Ne came professor of vocal physiology in the 'Nervous System,' read before the Boston University in 1872, where his Royal Society: in this he enunciated experiments resulted in the patenting many important discoveries. In 1824 of the telephone in 1876. He also inhe accepted the chair of anatomy at
vented the photophone and graphophone, and has written many papers
1828-29, Animal Mechanics, Bridgeon electrical matters and on research
work in connection with deaf-mutes.
Holds degrees from a number of Returned to Edinburgh 1826; brought
Brittels and foreign universities. out a new ed. of his Anatomy of Ex-(1819- pression. Died suddenly at Hallow

the interests of that paper. His enterprises included the Times 1895; a reprint of the Ency. Brit., 1898; a reprint of the Ency. Bru., 1898; the History of the S. African War, 1900-9; and the Times Book Club, 1905. In 1908 he became managing director of the reconstructed Times Publishing Company.

Bell, Currer, see BRONTE. Bell, George Joseph (1770-1843), born near Edinburgh: became member of the Faculty of Advocates, 1791. Pub. many works on Scots law; appointed in 1821 professor of Scots law at Edinburgh, and in 1831 a principal clerk of Session.

Bell, Henry (1767-1830), one of the originators of steam-navigation. Born at Torphichen Mill, Linlithgow, and after spending some years as a stone-mason, apprenticed to his uncle, a millwright. Later he served with an engincering firm in London, and in a shipbuilding yard at Borrowstoun-ness. In 1709 he settled in Glasgow, but removed in 1807 to Helensburgh, where he studied mechanics. In 1812 the Comet, a small vessel 40 ft. long, built under his direction and with an engine constructed by himself, was launched on the Clyde, being the first steam vessel in Europe.

Bell, Henry Glassford (1803-74), a Scottish lawyer, born on Nov. 8 in Glasgow; he was educated at the High School there and at Edinburgh University. He founded and ed. the Edinburgh Literary Journal in 1828, and in 1832 was admitted to the bar, becoming sheriff-principal of Lanark-shire in 1867. Pub. 2 vols. of poems and a prose vindication of Mary Open at Sects.

Queen of Scots.

Bell, Sir Isaac Lowthian (1816-004), was educated at Edinburgh 1904), was educated at Edinburgh and Paris, and afterwards founded great Clarence Iron-smelting works on the Tees. In 1875 he was elected M.P. for Hartlepool, which he represented till 1880, and in 1885 he was made a baronet. written a number of articles for scientific journals on chemical and metalsubjects. Among other lurgical honours, he has received the degrees of F.R.S. and D.C.L.

of F.R.S. and D.C.L.
Bell, John (1691-1780), commonly
called Bell of Antermony, followed
the medical profession. In 1714 he
went to St. Petersburg where he
joined an embassy to Persia. Returned to St. Petersburg, where he
was appointed to another embassy,
this time to Pelsia, returned to Manthis time to Pekin; returned to Mos-Of these travels he wrote cow, 1722. a most entertaining account. Resettled as a merchant; married, 1746. and retired to Antermony. His travels were printed and pub. at Glasgow, 1763. Bell, John (1763-1820), educated at

High School, Edinburgh. Opened. 1790, a private school of anatomy; 1793 pub. the first vol. of his Anatomy; next Discourse on the Nature and Cure of Wounds; Principles of Surgery. Died of dropsy at Home.

Bell, John (1797-1869), American

politician, born near Nashville, Tennessee, he was educated at Nashville University. Elected to the state senate in 1817, and to Congress in 1827, where he served until 1841. becoming speaker in 1834 and secretary of war in 1841. He was nominated for the presidency in 1860, receiving the votes of Kentucky, Tennessee, and Virginia.

Bell, John (1811-95), an English sculptor, born in Hopton, Suffolk, His

works are numerous and of merit; among the better known being 'The Eagle Slaver,' 'The Babes in the Wood,' and 'Una and the Lion,' while statues of Lord Falkland and Sir Robert Walpole were commissioned for the Houses of Parliament. The memorial to the guards who fell

in the Crimea is also by B.

Bell. John (1745-1831), a most enterprising publisher, who successfully defied a combination of London publishers, who called themselves the trade, and attempted to secure a monopoly of the best books. It was for this combine that Johnson prepared an ed. of the poets and wrote the Lives. B., in opposition to this, brought out the British Poets in Bell's Edition, giving the chief poets from Chaucer to Churchill with the exception of a few that were copyright. It formed an attractive pocket ed., and similar issues of Shakespeare and the British theatre followed. B. was the first publisher to discontinue

the use of the long f (s).

Bell, Joseph, Sir (1837 - 1911), a surgeon and author of medical works. He was appointed consulting surgeon to the Royal Infirmary and Royal

are: Manual of Surgical Operations and Notes on Surgery for Nurses He was the prototype of Sir A. Coneu Doyle's celebrated detective, 'Sherlock Holmes.

Bell, Mackenzie, a poet and prose writer, born at Liverpool, 1856; has always been interested in imperial questions, and is one of the original. members of W. E. Forster's Imperial turned to Scotland c. 1725. Under-Federation Committee. His chief took in 1737 another mission for works are: Spring's Immortality and

Poems: 1894; Christina Rossetti, 1898; Pictures of Travel and other Poems, 1898; Collected Poems, 1901; School Recitations for the Seven School Standards. John Clifford: God's Soldier, 1908; tudinata For God and for the Commonwealth, 1909; and Poems (with dedicatory essay to Theodore Watts-Dunton), essay 1909.

Bell, Robert (1800-67), a distinguished Irish journalist. born at guished Irish journalist, born at Cork on Jan 16, and educated at Soc. In 1828 he became editor of the Allas in London, contributing to Lardner's Cabinet Cyclopædia. He died in London, April 12. The best to known of his works are a History of Russia, 2 vols.; Lives of the English Poets, 2 vols.; and a Life of Canning, while he also wrote two novels and

three comedies.

tensive topographical and geological surveys in nearly all parts of Canada; was medical officer, naturalist, and geologist to the Neptune, Albert, and Diana expeditions, 1884-97, and has surveyed many of the rivers and some of the largest lakes of the dominion. R. B. has pub. upwards of 200 reports and papers, mostly on geological, biological, and geographical subjects, together with folklore. He is king's gold medallist of the Royal Geographical Society of London. Up to 1908, when he retired from service on a pension, he held the office of chief geologist to the dominion of Canada.

(1806-72),Bell. Robert Charles Scottish engraver, born at Edinburgh He engraved a series of Scottish views and a large number of vignette portraits, and also many plates for the Royal Scottish Association, which attention. attracted considerable The largest work he undertook was an engraving of 'The Battle of Preston-pans,' after Sir William Allan. This had received his attention from time to time for some years before his death, and was only completed a short time before that event. Between the years 1850 and 1872 a number of

Charles Whitehead, King's College in 1836. In 1828 B. was elected F.R.S., and from 1853-61 was president of the Linnean Society. Among his works are Brilish Stolkeyed Crustacea; British Quadrupeds; and parts 1-8 of Monograph of Tes-

Bell, Book, and Candle refers to a form of excommunication in Church of Rome, in which an ecclesiastic, after pronouncing his maledic-tion, closes his book, throws a lighted candle to the ground, and tolls the bell as for the dead. The symbolic Trinity College, Dublin, where with significance of the first two actions is others he founded the Dublin Hist, that the anathematised person is rethat the anathematised person is re-moved from the book of life, and his soul is cast from the sight of God as the candle from the sight of men.

Bella, It. in. in the prov. of Potenza, 16 m. S.S.W. of Melli; pop. 5000. Bella, Stefano Della (1610-64), b. at

Florence. Was one of the best masters of the etching-needle, and has been surpassed by few in the number of his Bell, Robert, geologist, was born at works; their number is given differ-Torontoin 1841. He has made very exemply by different writers, but they probably amount to about 1500; and. though he did so much, what he did he did well.

Bellac, the cap. of an arron. in the dept. of Haute-Vienne, France. Pop.

(1901), commune, 4791.

Belladonna, Atropa B., dwale, or deadly nightshade, a perennial plant deadly nightshade, a perennial piant of the order Solanaeeæ, found in Europe and Asia, and cultivated in the United States for the sake of the alkaloids contained in its leaves, branches, and roots. The name is derived from the It. bella donna, beautiful lady, owing to the fact that administering the juice to the eye has the effect of dilating the pupil, thus riving it a large and lustrous appeargiving it a large and lustrous appearance. The plant is used in medicine in the form of leaves, gathered when the plant is in flower and allowed to dry; the green extract prepared from the juice of the fresh leaves and branches; tincture of leaves prepared by adding one-third of its bulk of alcohol to the juice; the root, col-lected in autumn and dried; and the extract, tincture, liniment, and ointment prepared from the root. The active principles of the plant are chiefly atropine and hyoscyamine, but traces of hyoscine and bella-donnine are also found in the root. the years 1850 and 1872 a number of but traces of hyoscine and bellahis best plates appeared in the Art donnine are also found in the root.

Journal (n. 1872, p. 284), including The effect of these drugs, when applied 'The Philosopher,' after H. Wyatt, locally, is to lessen the sensibility of the Bagpiper,' after Sir David the sensory nerves, and they are Wilkie, and 'The Young Brother,' therefore used as anodynes. Large after Mulready, from the pictures in the Vernon Gallery.

Bell, Thomas (1792-1880), a celebrated zoologist, born at Poole in Dorsetshire. He was appointed dental setshire. He was appointed dental surgeon to Guy's Hospital, London, small doses. The use of B. liniments in 1817, and professor of zoology at and plasters is not unattended with danger, as the poison is freely ab- poets of his nation and the restorers sorbed by the unbroken skin. For of modern Dutch poetry. He died neuralgic pains, however, a plaster of moderate strength is of great service in giving relief.

Belladonna Lily, or Amaryllis B., is a native of Cape Colony and belongs to the order Amaryllidaceæ, the single species of its genus. It is devoid of a corona, and is zygomorphic, in which it differs from its allies, the daffodil and snowdrop.

Bellagio, a vil. of Italy, beautifully situated on the promontory dividing the two arms of Lake Como. vil. is well known and contains many large and magnificent villas.

commune about 3550.

Bellahouston, an eccles, parish of Lanarkshire, Scotland, 2 m. S.W. of Glasgow, of which it forms a suburb:

pop. 8400.

Bellaire, a city on Ohio R., Ohio, U.S.A., and a shipping centre for the Belmont co. coalfield, Its manufs. are glass, agric. machinery, pig-iron. Beds of coal, limestone, and fireclay are in the neighbourhood. Pop (1900) 9912.

Bellamy, Edward (1850-98), American social reformer and author, born at Massachusetts, U.S.A. studied at New York and Germany. He attracted great attention by Looking Backward, 2000-1887, in which book he pictured life under socialistic conditions. His later years were spent chiefly in lecturing. In 1897 Equality, sequel to Looking Backward, was pub., and the following year he died at his birthplace.

Bellamy, Mrs. George Anne (c.1727-88), was the illegitimate daughter of Lord Tyrawley, and educated at a Fr. convent. She lived with her mother in London, and associated with Mrs. Woffington and Garrick. She became a famous actress, and, till 1770, played in London, Edinburgh, and Her extravagance Dublin. licence, which were as renowned as her career was brilliant, caused her much sorrow and poverty in her later Released from the debtor's prison in 1785, she pub. her Apology. She died in February.

Bellamy, James, was born at Flushing, of poor parents. His first verses were effusions of patriotic feelings and love for his native country. Some wealthy citizens of Flushing were so much pleased with these first productions of the young poet that, to en-courage his talent, they resolved to send him, at their own expense, to a Accordingly he went to university. Utrecht, with the intention of study-These studies, howing divinity. ever, he soon left for the more congenial pursuits of poetry and general He ranks among the first in 1786.

Bell Animalcules, see VORTICELLA. Bellarmin, Robert, Cardinal (1542-1621), born in Tuscany. He entered the order of Jesuits in 1560; was ordained priest at Ghent by Jasenius in 1569, and elected professor of theology at the University of Louvain in the year after; having filled this chair for seven years he went to Rome in 1576, where he gave lectures on controversial theology. He died at Rome.

The controversial works of B. fill large three folio vols. Of merits, and of the merits, intellectual and moral, of their author, we have a favourable opinion from the learned Mosheim candid (Mosheim, Eccles. Hist., vol. iii. p. 155, Mac-

lane's translation).

Bellary, a dist. and tn. in British dia. The town is 300 m. from Madras by rail, and is one of the chief military stations of that presidency. It possesses two forts. The upper fort, built on the summit of a rock, rises 450 ft. from the ground. The supply of water is obtained from cisterns excavated in solid granite. The lower fort contains the barracks. A branch of the Madras Railway terminates at B. Iron, copper, antimony, etc. are found in the dist., and its manufs. are cotton and woollen goods, salt, and chintz stamping. Pop. 58,750.

Bellasis, Edward (1800-73), Eng. sergeant-at-law. He was educated at Christ's Hospital, and was called to the bar in 1824. His success commenced from the first, and the famous cases where he was conspicuous number over 350. He became sergeant-atlaw in 1844. From 1833 to 1845 he was interested in the Oxford movement, and became acquainted inment, and became acquainted in-timately with Newman, Pusey, Ward, and Manning. He left a peculiarly in-teresting autobiography and a num-ber of theological treatises, besides taking a prominent part in the con-troversy aroused by the bull of Plus IX, in 1850. He died, after a period of ill-health at Provence.

of ill-health, at Provence.

Bellatrix is γ Orionis. It is a white star of the second magnitude in the

left shoulder of Orion.

Bellay, Joachim du, a Fr. writer and poet, was b. c. 1525. He was a friend of Ronsard, next to whom he was the chief member of that famous society, the Pléiade, a society formed to create a Fr. school of renaissance poetry. At this time he wrote the Defense de Illustration de la Langue Français, 1549. In this prose work he explained the aims of the Pléiade. His later works are Les Antiquités de

Rome, which was trans. by Spenser, hematite iron ore. The cliffs are and entitled Ruins of Rome; Regrets, rocky and imposing, some standing pub. in 1559, and Les Jeux Rustiones. in 1560.

Belle Isle, Strait of, a channel be-

applied in particular to the Cotton-Occan; it is the main route from eide. It is a white, frugiferous bird, Great Britain to the Saint Lawrence fleshy appendage dotted with feathers blocked with ice. It is about 80 m. which hangs from its forehead. When the bird utters its cry this caruncle becomes clongated. See article by J. J. Quelch in the Field, 1892.

was the centre of the position of distinguishing himself in the wars of Was the Centre of the position of the Spanish Succession, he was made Waterloo. It lies 13 m. S. of governor of Metz and a marshal of Brussels. At B. A. the great generals France. He, with Broglie, had comwellington and Blucher met. The mand of the forces in the war of the battle of Waterloo, and subsequent Austrian Succession, and stormed victory, has been spoken of as the B. A. by the Prussians.

Belleek, a parish in the N.W. of Fermanagh co., Ulster. It is situated on the R. Erne, 20 m. N.W. of Enniskillen. It is a market town, and has

a pop. of 1980.

Bellefontaine, a tn. of Logan co. Ohio, U.S.A., 49 m. N.W. of Colum-

bus; pop. 5000.
Bellegarde: 1. A fortress, situated on a peak, 1380 ft. above the sea, in of Pyrénées-Orientales, the dept. France, on the Spanish border, 17 m. S. of Perpignan. Philip III. of France was defeated in the neighbourhood by Peter III. of Aragon (1285). The fortress was captured by the Spaniards in 1793, but was retaken, 1794. 2. Atn. in the dept. of Ain, France, on the Swiss border. Pop. about 3000. Belle-Ile- (or Belle-Isle) en-Mer, an

is. of France, belonging to the dept. of Morbihan, in the Atlantic Ocean, 8 m. S. of Quiberon Point. Its length the soil is fertile and well cultivated. putes he removed to Rome, where it Admiral Hawke defeated the Fr. fleet is supposed he died.

Bell-bird, the name given to sev. tween Newfoundland and Labrador. birds on account of their notes, but forming an entrance to the Gulf of applied in particular to the Chas-Saint Lawrence from the Atlantic and is noted for a curious long black R., but during the winter months, it is in length, the breadth varying from 10 to 18 m.

Belle-Isle, Charles Louis Augusto J. Quelch in the Field, 1892.

Bell-Casting, see Bell.

Belle Alliance, the name of a farm, the control of the material of the control of the restriction of t Austrian Succession, and stormed Prague in 1741. In the year following he led the brilliant retreat to Eger. He became minister of war in 1758, and then made sev. improvements in military service.

Belleme, or Bellesme, a tn. in France, in the dept. of Orne. It was besieged in 1228 by the army of Louis IX. of France. To the N. is the small forest of B., where there are some mineral springs. Pop. about 2600.

Belleme, Robert, Earl of Shrewsbury. He was knighted by the Conqueror in 1073. During Rufus's reign he became the most powerful lord in the realm. In 1102 he lost his Eng. estates and returned to Normandy. He died in prison, where he had been incarcerated by Henry II.

Bellenden, John, a poet and author, was born towards the end of the 15th century. He was of Scottish extraction and educated at St. Andrews and Paris. He is better remembered as a translator, having been authorised by is nearly 12 m. and its greatest James V. to translate Boece's History breadth about 7 m. The chief indus-of Scotland, and also Livy. He became try is pilchard and sardine fishing; canon of Ross and archdeacon of fine draught-horses are reared; and Moray. As a result of religious dis-

Admiral Hawke deleated the Fr. neet is supposed he died under Conflans off the coast in 1759; Bellenden, Sir John (d. 1577), eldest the is, was captured by the Eng. in son of Sir Thomas Bellenden of 1761, but restored to France two Auchinvole; some time secretary to years later. The chief th. is Le Pallais, Archibald Douglas, Earl of Angus, Pop. (1901) 9771.

Belle Isle: 1. A small is, in the he was made a Lord of Session by Atlantic, lying between Newfound-the queen regent; at the beginning land and Labrador, about 15 m. from of the Reformation he supported the either coast. Area, about 15 m. from your narry, but in 1560 he joined the either coast. Area, about 15 sq. m. royal party, but in 1500 he joined the There is a lighthouse, 470 ft. high, reformers; in 1651 Mary Queen of visible at a distance of 28 m. The Scots appointed him one of her privy true breed of Newfoundland dogs council, and he was supposed to be conception Bay, near the S.E. ex-favourite, Rizzio; he fled from Edin-tremity of Newfoundland. It is about 6 m. long by 3 m. broad. The soil is favour, and supported the queen's fertile, and there are rich deposits of marriage with Bothwell.

Bellenden, William, professor of the Moira R. It has splendid railway humanity, who ft. in the early part of and water communication. The Althe 17th century. He held a chair at the university of Paris, and was favoured by James I. of England. He is now principally remembered (if he is remembered at all) as a writer on Cicero. Dr. Parr edited his works in 1787, with a preface of political invective, more suo, against Pitt, asserting, inter alia, that Middleton in his Life of Cicero borrowed from B. without acknowledgment

Bellerophon, a genus of fossil gastropod mollusc, which is the typical genus of the family Bellerophontide. The species occur exclusively in the

Palæozoic formations.

Bellerophon was the son of Glaucus. King of Corinth, and Eurymede. name was changed to B. from Hipponous, after having killed Bellerus by accident. He was sent to Proetus, King of Argos, and unwittingly won the love of Antea, wife of Proetus. He spurned her advances, whereupon she sought to turn her husband against him. Proetus sent him to lobates, King of Lycia, with sealed instructions to put B. to death. Iobates was unwilling to kill him directly, so imposed upon him the almost impossible task of killing the monster Chimæra. But by the aid of Pallas, who gave him the winged horse Pegasus, he succeeded in slay-He defeated the ing the monster. Amazons, and cut down the Lycian ambuscade. Thereupon king the ceased to attempt his death and gave him his daughter Philonoë in marriage. Three children were born. cording to later stories B, caused the anger of the gods to fall upon him, and he was driven out to wander alone through the Aleian fields. attempted to fly to heaven on Pegasus, but was overthrown and stricken with blindness.

signifying any writing of a refined or elegant character, but more particularly applied to essays, poetry, and

criticism.

formerly a suburb of Belleville, Paris, now the eastern quarter of that city; it is inhabited chiefly by poor

people. Belleville, a tn. of Essex co., New Jersey, U.S.A., 31 m. N.E. of Newark; pop. 4000.

Belleville, a city in St. Clare, Illinois, U.S.A., 15 m. S.E. of St. Louis. There are large flour mills, and manufs. of heavy iron goods, threshing machines, etc. Coal is found in the dist. Pop. 18.756.

bert University was founded here in 1857. Pop. 9520.

Belleville-sur-Saone, a tn. of France in the dept. of Rhone, on the R. Saone; pop. (commune) about 3000.

Bellevue, a tn. in Campbell co., Kentucky, U.S.A., near Newport;

pop. 4000. Bellew, Harold Kyrle (1855-1911), Eng. actor. b. at Prescot, Lancashire; entered the navy, and later went to Australia, where he first appeared on the stage in 1874. He returned to England in 1875, and secured an engagement under Helen Barry. In 1878 he joined Henry Irving's company at the Lyceum, and in 1879 Marie Litton's at the Imperial. From 1885-57 he visited America, and on returning formed a touring company with Mrs. Brown-Potter. The partnership broke up in 1895, when he appeared successively at the Criterion and Lyceum. From 1902 till his death he played in America.

Belley, a tn. in the dept. of Ain, France, 44 m. E. of Lyons. It is the seat of a bishopric, and has a cathedral dating from A.D. 889, and the ruins of an anct. Rom. temple. An excellent quality of lithographic stone is quarried in the neighbourhood.

Pop. (1901) 6467.

Bell-flower, a name sometimes applied to different species of Campanula because of their bell shape. C. rotundifolia is the Scottish bluebell; C. medium the Canterbury bell.

Belli, Giuseppe Gioachino (1791-1863), an it. poet, born at Rome. The majority of his poetry is written in the Roman dialect; he also wrote satirical sonnets. See I sonnetti romaneschi (1886-9) ed. by Morandi.

Belligerent. This term is applied to a nation at a time of war. Its application is very significant, marking an Belles Lettres, a somewhat vague important distinction in international term, borrowed by the English and law between a gov. at war, and a subother languages from the French, ject state or race in a state of reimportant distinction in international bellion. In the case of a gov. engaging in warfare, the Bs. must be controlled by the laws of war, and in the interests of humanity they are compelled to conduct the whole campaign strictly on the approved methods of civilisation. At the same time, they are also brought under distinctly defined obligations in respect to other and neutral powers. The recognition of the B. parties by neutrals is greatly advantageous, in that it ensures the support-moral, and if necessity demands, the material assistance-of the latter in the event of the violation of the laws of warfare. A B. can claim the right to use every means which to him appears necessary to subdue Belleville (Ontario) is a prosperous to him appears necessary to subdue tn, situated on the Bay of Quinte and his adversary, and to bring him to

terms. This is the broad and extensive right of Bs., though it is very much modified in the civilised states, by the humane usage of nations, and also by international agreement. Great Britain accorded the status of B. to the Confederate States of America in 1861.

Belligerents, Rights and Duties of. The conduct of war involves the relations first between the two parties engaged in the war, the B., and secondly between either or both those parties and neutrals. The latter is discussed under NEUTRALITY and CONTRABAND. The latest regulations adopted for the conduct of a war, in the endeavours to make it as humane as possible, are contained in the articles of the Hague Convention, 1907, embodying or modifying the convention of 1899. It must be remembered that in actual warfare military necessity, the exasperation of feelings among an invaded population may result in the breaking down of rules agreed to by diplomatists or representatives in time of peace. The armed forces of the B. must alone carry on the war, and to them alone do the rights. duties, and laws of war apply; beside the regular army, militia or volunteer forces may be regarded as B. troops, and not as mere marauders only, if they are com-manded by some one responsible for his men's acts, if they carry emblems distinctive and recognisable at a distance, carry arms openly, and conduct war in accordance with accepted laws and customs. The last two con-ditions will suffice when the population of an invaded country take up arms and have not time to organise under the other conditions. Enemy's property on land, where it belongs to the state, can be seized by an army of occupation; also all appliances for transmission of news, persons, or goods, and ammunitions of war belonging to private persons can be seized, but must be returned with compensation after peace. Requisitions in kind or services on private persons can only be made for the necessities of the army, and paid for on receipts given, to be paid afterwards. Private property on land is not strictly immune in war. On sea, enemy's private property is still liable to capture and confiscation, though there is a movement to exempt it. It is forbidden to use poison or poisoned arms; to kill or wound persons belonging to the enemy's nation or forces treacherously, or those who have surrendered at discretion: to declare ' no quarter'shall be given; to use arms or projectiles, etc., which will cause superfluous injury; improper use of flags of truce, enemy's flags or uniforms, or

red-cross badges; bombardment of undefended places or dwellings, except on a refusal after formal summon to furnish supplies requisitioned; destruction and seizure of property except when urgently necessary for purposes of war; pillage of a tn. or place, even if taken by assault. Prisoners of war must be treated humanely; they are in the power of the enemy's gov. not of those that took them; they may be confined, but only as a measure of necessity; they may be authorised to work, but not for any purpose of the war, they are treated on the same footing as the soldiers of their captors in respect of food, etc. Escaped prisoners are subject to punishment if caught before rejoining their own army or before leaving the country occupied by their captors; if captured a second time after escaping successfully, they are not liable to punishment for first escape. A prisoner released on parole and recaptured bearing arms forfeits his rights as a prisoner of war. For treatment of sick and wounded in war see GENEVA CONVENTION: it may be noted that the Hague Convention, 1907, drew up rules on the lines of the Geneva Convention for the treatment and conduct of hospital ships and of sick and wounded in naval warfare.

Bellingham, a parish and mrkt. tn. of Northumberland, on the l. b. of the N. Tyne. The church dates from the 13th century and has a finely groined roof. Cairns and Druidical stones are found in the neighbourhood. Beds of coal and ironstone are worked.

found in the neighbourhood. Beds of coal and ironstone are worked.

Bellini, Gentile (1421-1501), eldest son of Jacopo B., was born at Venice. He studied painting under his father, and acted for some time as his assistant, but subsequently gained such reputation by his original works that he was employed, in conjunction with his brother, Giovanni, to decorate the great council chamber of the Venetian senate house. His other prin. works are the 'Histories of the Holy Cross' at San Giovanni, and the ' Preaching of St. Mark' at the college of that saint. Some of B.'s pictures were taken by commercial speculators to Constantinople, where, having been Constantinopic, where, naving been seen by the sultan, Mohammed II., that monarch sent an invitation to the artist to his court. This proposal was accepted by B. He was courteously received by the sultan, who sat to him for his portrait, and commissioned him to paint various historical works. Among the rest was the subject of the 'Decollation of St. John; this picture being completed was greatly admired by Mohammed. who pointed out, nevertheless, some inaccuracy in the marking of the dissevered neck; and, in order to prove the justice of his criticism, he ordered, the head of a slave to be struck off in the presence of the astonished artist. From this moment B. never enjoyed an hour's tranquillity until he had obtained leave to return to Venice. Mohammed dismissed him with many marks of favour, placing a gold chain round his neck and giving him letters to the Venetian senate expressive of his satisfaction. He was engaged in various public works after his return to Venice, for which he was requited by the republic with an honourable pension for life and the order of St. Mark.

Bellini, Giovanni (1422-1512), the son of Jacopo and the brother of Gentile P., born at Venice. He contributed perhaps more than any painter of his time to emancipate art from the dry Gothic manner of his predecessors. Giovanni ornamented the public edifices and churches of Venice and other cities of Italy with a prodigious number of paintings, and continued his labours to a very advanced age. Some of his small pictures are in England; but it is only by his large works in Italy that an adequate idea of his power can be formed.

Bellini, Jacopo, born in Venice, was one of the earliest artists in oil painting, and his works have considerable merit, considering the age in which they were executed. He died in 1470.

Bellini, Laurentio (1643-1704), descended from a respectable family, was born at Florence. After receiving in his native place the elements of a classical education, he proceeded to Pisa, where he made such rapid progress in his studies that, when only twenty years of age, he was appointed professor of philosophy. He continued to teach anatomy and to practise medicine at Pisa, with great success, for thirty years, when he was invited to Florence and made chief physician to the Grand Duke Cosmo III. died on Jan. S.

The writings of B. are now little read. The best is the treatise Gustus novissimedeprehensum (Bologna, 1665), in which he pointed out the papillea of the tongue to be the essential organ of taste. The next

Urinis, Febri-

have been collected and pub, in 2 vols. 4to, Opera Omnia (Venice, 1708), and reprinted 1732.

Bellini, Vincenzo (1806-36), a composer of considerable celebrity, born at Catania, in Sicily. B. was educated in the Conservatorio at Naples, under Zigarelli, and in that city, before he had completed his twentieth year, he produced an opera. Bianca cFernando, at the theatre San Carlo. The following year he wrote for the Scala at Milan Il Pirata; and this was succeeded by La Straniera at the same; La Sonnambula at Naples; I Capuletti ed i Montecchi at Venice; Norma at Milan; I Puritani for the Theatre Italien at Paris, etc. He died of pulmonic disease.

Bellinzona can of the Swice center of Ticino or

head of Lago elevation of

St. Gotthard route. There are three old castles. Pop. (1900) 4956.

Bellis, a genus of herbaceous plants of the order Compositie, of which Bellis perennis, the common daisy, is the best known. It grows abundantly in Great Britain and throughout Europe in both a wild and a cultivated state. The florets of the ray are male, and the head of the daisy closes in

wet weather and at night. Bellman, Charles Michel (1741-96), a Swedish poet, born at Stockholm. He studied at the university of Upsala, and after he had left it was enabled to devote himself entirely to his favourite pursuits of poetry and literature by the liberality of Gustavus III., who appointed him to a nominal office, with a competent income and the title of secretary of

the court.

Bell-Metal, an alloy, composed of a mixture of copper and tin, used for making bells. There is from 18 per cent. to 30 per cent. tin, with 80 per cent. to 70 per cent. copper, the proportion of tin being larger in the case of small bells. See also ALLOY. Belloc, Hilaire, Eng. writer,

orn in 1870. After a brilliant carcers bat Oxford, where he took first-clas honours in history, he served for some years in a Fr. artillery regiment. In 1906 he was elected M.P. for South Publications include: The Salford. Bad Child's Book of Beasts, 1896; The Modern Traveller, 1898; Danton, 1899; Robespierre, 1901; The Path to Rome, 1902; Mr. Clutterbuck's Election, 1908; in conjunction with Cecil Chesterton, The Party System, 1911; The Girondins, 1911: The Four Men, The Servile State, 1912.

Bello, Francesco (c. 1450-1505)

Bello, Francesco (c. 1450-1505), It. epic poet, known as Cicco da Ferrara on account of his blindness. Lived in great poverty at Mantua and Ferrara. He is chiefly interesting for his Mambriono (45 cantos), which, dealing with the romantic and chivalrous adventures of an Oriental potentate, a considerable influence Ariosto's Orlando Furioso.

Bello Horizonte, the cap. of Minas Geraes, Brazil, 50 m. N.W. of Ouro Preto. It contains an academy of law. Pop. 26,000

Bellona, the goddess of war among

the Roms., the sister or wife of Mars. | the number of half-hours that have The goddess was usually represented as wearing a helmet, and bearing a shield in one hand and a fire-brand or a spear in the other. During the Samnite War (296 B.c.) Appius Claudius vowed to dedicate a temple to her, and it was afterwards erected (293 B.C.) in the Campus Martius. Her priests were called Bellonarii, and her festival, which was held on March 20, keeper whose tavern he was leaving was celebrated by self-inflicted human in his sleigh. The haunting sound of wounds, and by offerings of blood in sacrifice.

Bellot, Joseph René, a Fr. naval officer and Arctic explorer, born at Bellshill, atn. of Lanarkshire, Scot-Paris in 1826. He won the Cross of land, 3 m. N. of Hamilton, in the the Legion of Honour in the Fr. explaining district. Pop. 3500. pedition against Tamative in 1845. In 1851 he joined the party in search of Sir John Franklin. In March 1853, while on the expedition under Capt. An obelisk Inglefield, he perished. was erected at Greenwich to his

memory. Bellot Strait, discovered by Joseph Bellot, on the N. of N. America, separates N. Somerset from Boothia

Felix, and connects Prince Regent Inlet with Franklin Channel.

Bellows, see Blowing Machines. Belloy, Pierre Laurent Buirette de (1727-75), born at Auvergne. He was intended for the legal profession, but he preferred the stage. He was among the first to introduce successfully on the Fr. stage native heroes. For sev. years he played principally at St. Petersburg under the name of Dormont. His tragedy, Titus, which was introduced in France in 1758, was a failure, and thus disappointed B. returned to Russia. His next play. Zelmire, in 1762, was successful, and the Siege de Calais, in 1765, was rewarded with still greater applause. Through this last piece he received the freedom of the city of Calais. His death took place at Paris.

Bell Rock, or Inchcape Rock, a reef

off the E. coast of Scotland, at the opening of the bay formed by the Red Head in Forfarshire and Fifeness, nearly opposite the mouth of the Tay. It is nearly 12 m. S.E. of Arbroath, and is about 2000 ft. long. A light-house, 120 ft. high, designed by Robert Stevenson and Rennie, was Robert Stevenson and Rennie, was creeted in 1810; a new light-room was built in 1902. The old tradition of the he's tood at the parting of the way bell hung on a tree by the Abbot... to use divination: he made his arrows bright' (Ezekiel xxi. 21). bell hung on a tree by the Abbot of Aberbrothock (Arbroath) is celebrated in Southey's famous ballad, The Incheape Bell. Consult Campbell, Notes on the Bell Rock, 1904.

Bells, a nautical term, used in describing the tires

scribing the time. A day on board ship is divided into watches of four hours each. Every watch is marked off into half-hours by the ringing of a bell, the strokes of which depend on

elapsed during the watch. 'two-bells,' marked by a stroke, shows that one hour of the watch has expired.

Bells, The: 1. Name of a poem by Edgar Allan Poe. 2. Title of the Eng. translation of Erckmann-Chatrian's Le Juif Polonais. It tells how the Jew was murdered by an innthe sleigh bells drive the murderer mad. Sir Henry Irving created the part of Mathias, the innkeeper.

Belluno, a prov. of N. Italy in Area 1293 sq. m. Venetia. country is mountainous, and there are extensive forests. The chief riv. is the Piave, which rises in the Alps and flows into the Gulf of Venice. The vine and other fruit-trees grow on the lower hills and in the valleys, and there is good pasturage. Pop. (1901) 214,603. The cap. is B., an episcopal city, standing on the r. b. of the Piave, 51 m. N. of Venice. The cathedral belongs to the Renaissance period, and is modelled on the Palladium. The prin. manufs. are silk and wax, and there is also considerable trade in timber and fruit. The tn. is the Rom. Belunum. Marshal Victor took from it his title of Duke of B. Pop. (1901). commune, 18,747.

Belmez, a tn. with large coal mines in the prov. of Cordoba, Spain, 35 m. N.W. of Cordova. Pop. 12,000.

Belmont, a settlement in the dist. of Herbert, a settlement in the disc. of Herbert, Cape Colony. It is situated on the railway to Kimberley, and 58 m. S.W. by S. of that town. Beloit, chartered as a city in 1856, it stands on the Rock R., Wisconsin, U.S.A. It is 75 m. S.W. of Milwaukee.

B. College was founded in 1846; it is a Presbyterian institution, and accommodates 500 students. The manufs, of B, are agricultural tools, flour, and paper. Pop. 10,525. Belomancy (Gk. $\beta \delta \lambda o_5$)

μαντέα, divination), divination by means of arrows, a form of magic practised by early races, such as the

Belon, Pierre, one of the fathers of natural history on the revival of letters, born at a hamlet in a parish of the Fr. prov. of Maine, somewhere about the year 1518. Deservedly great as is the fame which he acquired, nothing seems to be known concerning his family, which is generally considered not to have been of note.

belt is used up in bending the belt often made with split rims, which are over the curve of the pulley. The actual resistance of the belt to curv-The ing may be neglected in the case of thin flexible leather or woven belting, but at high speeds centrifugal force tends to reduce the pressure of the belt on the pulley, and it is probable that at about 10,000 ft. per minute for leather belts, the belt tension would be so much reduced that the belt would cease to drive. Belts may be used to drive pulleys which are at right angles to the driving shaft, in which case the belt takes a quarter twist. When two pulley shafts are not parallel, whether their directions intersect or not, the belt may be passed round and kept in place by guidepulleys. The only condition to be observed is that the point at which the belt leaves each pulley must be in the same plane as the next pulley.

Materials.—Belts are usually made of leather tanned by oak-bark; the thickness varies from 50 to 32 in. in single belting and twice that amount in double belting. The strength of single belting is from 750 to 1500 lbs. per sq. in. of width. Raw-hide is sometimes used, and is of consider-able strength. The strips of leather are joined by paring down the ends cementing them together with glue, and lacing or riveting them to make them more secure. It is usual to leave one joint uncemented, so that the belt may be tightened when required. Leather belts are usually run with the flesh side next to the pulley, but in America experiments appear to show that the driving power is greater with the grain or smooth side in contact. Cotton belting has the advantage of being cheaper and stronger leather, 8-ply cotton belting being found by the manufacturers to be twice as strong as double leather belt-India-rubber is sometimes used in wet places, where leather is unsuitable, but is easily damaged by contact with oil. Chain belting consists of links of leather strung together on wire pins which are not bent as the

belt passes over the pulley.

Pulleys.—A belt passing round a conical pulley in motion has a tendency to creep up to the larger end. Pulleys are therefore made with the rims slightly convex, so that the belt remains in the middle of the rim. The arms may be elliptical or segmented in section, and the latter form is usually preferred. They may be usually preferred. stronger and lighter, but are more air, at least on one side, and open to the liable to fracture on cooling. Pulleys all. The term is an It. compound, are sometimes east in two halves, so signifying 'a fine view,' and in Italy that they may be fixed on a shaft it is constructed expressly for that without interfering with the shaft purpose. The chief example is in the

closed up by a the pulley is belt is thrown pairs or tighte the upper shale. It was is the driving shaft there is a danger that the bell will be doubled round on itself by the rotation of the shaft and slung round with risk of damage to life or property. This may be obviated by the provision of a light perch above the shaft on which the pulley may hang when unshipped. Allied to systems of belting is the use of rope for gearing. The pulleys are then provided with grooves so shaped that the ropes de not reach the bottom, but are wedged in by the sides, and so give a very effective drive. Cotton ropes are very strong, but hemp and wire are also used. The rope may meet the pulloy at an angle, so that the shafts need not be exactly parallel. Another advantage of rope gearing is that many ropes may be run from a driving drum to sev. machines. See W. C.

Unwin, The Elements of Machine Design, part i. 1909. Belts, Jupiter's, see JUPITER. Belturbet, a tn. in co. Cavan, Ircland, 8 m. N.W. of Cavan, on the R. Earn. Pop. about 1500.

Beluchistan, see BALUCHISTAN. Beluga, or the white whale, belongs to the family of Dolphins. It is found chiefly around Greenland, but occurs in many parts of the Arctic seas, and occasionally has been seen off Scotland. Its body measures 12 or 16 ft in length, and is a creamy white colour. Its head is arched, its snout short and rounded, its teeth are convergingly on the land or the state of the state snort and rounded, its teeth are comparatively few, small, and conical, and it has short flippers. Young whales are at first a bluish grey. Belugas associate in herds.

Belug, a vil. of the Hassan dist. of Mysore, which contains a famous temple. Pop. 4000.

Belur-Tagh, see Bolon-Tagh.
Belus: 1. The name of the chief
ity of the Babylonians and deity 2. In Gk. mythology, the Assyrians. son of Poseidon, and father and Danaus. He Ægyptus erroneously believed to be the founder of Babylon. The patronymic Belides is given to Ægyptus and Danaus; to Lynceus, son of Ægyptus; to Pala-medes; and to the Danaides, daughters

of Danaus. Belvedere, in architecture, is a small building constructed at the top a park or garden than to the constructions on the tops of houses.

Belvedere, or Kochia scoparia, is a species of Chenopodiacee which is native to E. and Central Asia. It is cultivated in Britain as an ornamental plant on account of its leaves. which somewhat resemble those of a cypress; hence it is sometimes called the summer cupress.

Belvidere, a banking tn. and cap. of Boone co., Illinois, United States. Fine public buildings and factories.

Pop. over 7000.

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Belvisia, the Napoleona imperialis, is a species of Lecythidaceæ which grows in tropical W. Africa. It grows to a height of 7 or 8 ft and is loaded with large, broad, bright blue, red, or white flowers. The fruit resembles a pomegrapate.

Belvoir Castle is situated 4 m. S. of Bottesford in Leicestershire. Since the time of Henry VII. it has been in the hands of the Manners family, and is now the seat of the Duke of Rut-The castle itself is a fine land. castellated, pseudo-Gothic building. During the Civil War it was a royal stronghold, whilst its history goes back to the days when William the Conqueror granted its site to Robert de Todenei, who founded a priory, long since suppressed, at the foot of the isolated mound from which the castle commands so wide a prospect. Its picture gallery contains paintings by Vandyck, Murillo, Reynolds, Holbein, etc.

Belyta, a genus of hymenopterous insects of the family Proctotrypide. They are cosmopolitan, and their larvæ live in the bodies of insects and spiders or in their eggs. These parasites are very minute, have four wings, and frequent sandy places.

Belz, a small tn. of Galicia, Austria-Hungary, 39 m. N. of Lemberg. Belzoni, Giovanni (d. 1823), born at

Padua, but lived during his youth at Rome, where he intended to enter the monastic life, but in 1800 he left Italy and visited most countries in Europe. In 1803 he came to England and married; he lived by exhibitions of feats of strength. He was interested in hydraulics, and went to Egypt with a plan for irrigating that country: the jealousy of the natives frustrated He shipped many his intentions. monuments of Egyptian anct. civilisation to England, and discovered many unknown tombs along the course of the Nile. In England he published an account of his travels and excavations. He died at Gato on his way to Timbuctoo.

applied rather to a summer-house in the university of Cracow, and admitted as a cadet in the corps founded by Napoleon at Warsaw. After thirteen years military service, he took part in the Polish rebellion, 1830-31. He then left for Paris, where he lived for sixteen years. In 1648 he joined the Hungarians, and received command of 10,000 men. In 1819, he defeated the Austrians, driving them and the Russian allies into Wallachia. He also expelled Puchner from the Banat and returned to Transylvania. He was forced to retreat from such superior numbers, and escaped to Hungary, where he fought in the battle of Temesvar. Again he escaped Mohammedan faith. He was appointed to the Sultan's army as Amurat Pasha. He died at Aleppo.

Bembridge

Bembatoka, or Bombetok, a bay, situated in lat. 16° S., and long. 46° 30′ E. on the N.W. coast of

Madagascar.

Bembex, the typical genus of the of insects hymenopterous family They are known as Bembecinæ. peculiar to hot climates and sometimes resemble wasps in size and colour. The female forms burrows in the sand with a cell at the bottom of each: here she deposits five or six flies she has killed, in each cell, lays an egg in it and closes the entrance. The larva, when hatched, feeds on the flies until it has become a perfect insect. Bembo, Pietro (1470-1547), one of

the celebrated Italian authors of the 16th century, the son of a Venetian patrician; studied at Padua and Ferrara, learning Gk. from Lascaris of Messina; he pub. a dialogue after the manner of Plato. He seems to have been fond of imitation, for he pub. imitations of Petrarch. Urbino he became acquainted with Julian de Medici, brother to Leo X., whose secretary, by Julian's influence, B. became. He had many benefices, and in 1530 was commissioned by the Council of Ten to write the history of the Venetian republic; he wrote this in Lat., completing it up to the year 1513. In 1539 he became a cardinal.

He died at Rome. Bembridge Beds, is the geological name for a fossiliferous div. of the Upper Eocene strata, principally developed in the Isle of Wight. The beds rest on a compact cream-coloured limestone, known as B. limestone. The beds above this foundation have been arranged into three divs.; the first of marks and laminated grey first of marks and laminated clays, containing many melania turretissima; the second of un-Bem, Joseph (1795-1850), a famous fossiliferous clays alternating general of Polish origin, was born at fossiliferous marls; the thir the third Turnow, Galicia. He was educated at greenish marl, containing immense

Bend

quantities of marine mollusca, and manufs. are silks, gold and silver known as the oyster bed. The shells thread, filigree work, and embossed of Lymnea and Planorbis are found in large quantities, but the distinguishing feature of the beds is the large trace watered by the conditional state of the beds is the large trace. mammalian remains of Palmotherium and Anaplotherium.

Ben, Bein, or Bhein, a word in the Scottish dialect of the Gaelic language which has been adopted to indicate most elevated summits of mt. ranges. A corresponding term is 'Pen,' which occurs in the names of sev. places in

Cornwall and Wales.

Ben, the first syllable in many Heb. names, and means 'son,' lit. or metaphorically, e.g. 'Benhadad' is the son, or the worshipper, of Hadad, or Adod, the chief idol of the Syrians. Benjamin' is son of the right (hand), i.e.

son of happiness. Ben, Oil of, is extracted from the seeds, called Ben-nuts, of a tree found in the E. Indies and Arabia, and known as the horse-radish tree (moringa

exposed t a whitisl

being removed, is unaffected by cold, on which account it is of great value to watchmakers. B. O. is also used by painters extract the

pure it will

but, owing to its frequent adulteration with inferior oils, its use is limited.

Benadir, the name applied to the coastal dist. in the S. of It. Somaliland, containing Brava, Marka, Warsheik, and Yub, the ports of the protectorate.

Benalla, a township of the Delalite co. of Victoria, Australia, 43 m. S.W. by W. of Beechworth. Pop. over 3000.

Benares, a tn. in dist. of B. in the United Provinces of India, is one of the most anct, cities of the world, and is the holy city of the Hindus. Ruins, situated 3½ m. to the N. of the city, indicate that here was the original site. In the 6th century Sakya Muni, a Buddhist, estab. his religion there, a fact which testifies to the status of the city even at that time. Its modern temples number about 1500. It has sustained little loss of beauty, as its appearance from the R. Ganges is one of the sights of India. Numbers of bathers are observed c

W., and co

Ganges, Karamnasa, Gumti, and Burna. It yields barley, rice, wheat, sugar, and opium. Its climate is cool in winter, but hot to an extreme degree in the summer. Famines occur occasionally.

Benavente, an anct. ruined tn. of Spain, standing on the R. Esia in the Zamora prov. Silk spinning is the industry. Pop. 4536.
Benbecula, an is. of the Hebrides, lying between N. and S. Uist, and about 20 m. W. of Skye. It belongs to Intermose ships. to Inverness-shire. Its area is about 36 sq. m. Three-quarters of the land is taken up by farmers. Pop. 1425.

Benbow, John (1650-1702), viceadmiral, spent his whole life in active service at sea. Near Jamaica he attacked a Fr. squadron far superior in numbers to his own; his leg was to take charge of the attack; he was defeated owing to the want of support from other officers; he returned to Jamaica, the officers were punished, and he died of his wounds.

Bencher, see INNS OF COURT.

Bench-warrant, an order issued by the court to enforce obedience, as in the case of delinquent jurymen, for contempt of court. These warrants

contempt of court. These warrants are used extensively in the States.

Bencoolen, the cap. of the residency of B., Sumatra. It is stunted on the S.W. coast of the is. The Eng. settled there in 1685, and estab. an extensive trade. Subsequently they ceded it to the Dutch in 1825. Its pop. is 6000. The residency covers an area of 9690 sq. m., and has a pop. of 140 126. of 140,126.

Ben Cruachan, a mt. 3689 ft. high, in Argyllshire, Scotland, just N. of Loch Awe.

Benezur, Gyula (b. 1844), a Hungarian painter, born at Nyiregyháza. He studied at the Academy of Munich, to which he was appointed professor, 1876-83. He became director of the Academy of Budapest in 1883. B. has been greatly influenced by his master, Karl Piloty, but, nevertheless, his work shows and his

bathers are observed c away their sins in the riv. The tn. is surrounce alled the 'Panch-kos' road, from its length of five kos (7½ m.). Sacred rites are observed in connection with a containce to the containce

chief teum, is one of the group of figures

character. A B. is formed by two parallel lines drawn diagonally, and at equal distances from the fesse-point, from the dexter chief to the sinister base; the fesse-point being the centre of the escutcheon. It is in width one-third of the shield if charged, and one-fifth if uncharged. When the width of the B. is reduced by half it is called a 'bendlet.' When a bendlet is halved, it is termed a 'cotise.' A B., placed between two cotises, is said to be 'cotised.'

A 'riband' is a cotise couped, that is to say, cut off smooth at its extremities, so that it does not extend to the edges of the shield. The riband is used to mark a difference, and is sometimes cut short, when it becomes a 'baton' and is the Fr. barre. The baton often marks illegioarre. The baton often marks megi-timacy. The term baton, however, is also used for the riband. The scarp is half the B., and the baton a quarter of the B. In the case of the B. being reversed, that is, sloping from the sinister chief to the dexter base, it is termed the 'B. sinister.' When charges are placed towards the B., they are spoken of as 'bendwise,' and all charges are understood to be so placed. When severally

charges are so placed with reference to each other that they run from dexter chief to sinister base they are said to be 'in B.' 'Per B.' is when the field or charge is equally divided by a line drawn diagonally from dexter chief to sinister base. 'Bendy' is the term used to mean a field divided into four, or a greater even number of parts, by lines drawn diagonally, or in the direction of a B. Benda, Georg (1721-95), a distin-

guished composer, was born at Jung-bunzlau in Bohemia. He was one of a noted musical family. He was also a pianist, violinist, and a musical director at Berlin in 1740, Gotha in 1748, and Hamburg in 1778, and again at Gotha after 1746. He com-He died posed operas and cantatas.

at Kostritz. Bendall, Cecil (1856-96), English Orientalist. In 1882 he was appointed Orientalist. In 1882 he was appointed assistant manager of the Oriental library dept. at the British Museum, and in 1885 he was appointed to the chair of Sanskritin University College, London. He issued a Catalogue of Buddhist Sanserit MSS, in the University Library, Cambridge, 1883. He also wrote A Journey of Literary and Archwological Research in Nepul and Northern India, 1886; and Northern India, 1886; and Cikshasamuccaya, 1897.

Bendemann, Edouard (1811-89), a famous Ger. painter. He was born at

called ordinaries, which are the ear-liest devices of mediæval heraldry, artist, Schadow, whose daughter he being nine in number, and simple in married later. He was a little more than twenty years of age when his artistic genius was first recognised by his own countrymen. In 1832 he produced his great picture of the 'Captive Jews' at Berlin. His fame spread, and in 1837 he was awarded the gold medal at Paris. In 1838 he was appointed to the professorship at the Academy of Art in Dresden. While here he was entrusted with the decoration of the frescoes in the throne-room at the palace, and on these depended the establishment of his fame. His picture, 'Jeremiah in the ruins of Jerusalem,' which he painted for the King of Prussia, was a great success, although the colouring was not altogether satisfactory. His paintings were correct and elegant, but were somewhat lacking in passion and force. In 1858 he succeeded his former master, Schadow, in the directorship of the Dusseldorf Academy, and he continued to hold this position until 1867. His works were chiefly religious, allegorical, and historical. He also produced several very large canvases and frescoes.

Bendemir, Bendemeer, Bendamur, or Bundameer, is a river of Persia, which flows into Lake Tashk or Nargis to the east of Shiraz.

Bender (Bendery), a Russian tn. of the gov. of Bessarabia. It is situated on the r. b. of the Dniester. Tobacco, candles, and bricks are produced, while it exports corn, wine, wool, and cattle. Timber is floated down the

cattle. Timber is hoated down the Dniester. The tn. dates back to the 12th century. Pop. (1900) 33,741.

Bender-Abbas, which means 'harbour of Abbas,' from the Shah Abbas I., is a tn. on the N. shore of the Persian Gulf, belonging to the Kirman prov. in Persia. It is 12 m. N.W. of the is. of Ormuz. It has port accommodation, and good anchorage for large vessels in 4-5 fathoms, about 2 m. off tn. Its trade is compara-The exports are cotton. tively small. tobacco, drugs, dyes, opium, dried fruits, carpets, woollen and silk goods. The imports are dry goods, sugar, spices, glassware, and hardware. Under the name of Gombroon, it at spices, one time took its place among the first scaports of Persia. The tn. is surrounded by walls, but the interior is of very poor description. The Eng. were allowed to build a factory in 1620, and the Dutch soon after re-ceived the same permission. The old Dutch factory still Pop. 8000. stands. Bender-i-Gez, or Bandar-i-Gez, an

important port on the Caspian, Persia. Its chief exports are raw cotton, almonds, dates, raisins, wheat, wool. Its chief imports are glass, grain, and manufactured goods.

Bendigo, otherwise Sandhurst, is a tn. and co. in Victoria, Australia. The co. has for its western boundary the R. Loddon, and the Campaspe on the E. Its area is about 1949 sq. m. The town is noted for its gold and quartz mining. Rich deposits of gold were found in 1851. It is also noted for its agric. produce and wines. between Melbourne and Echuca, 100 burning fiery furnace. This hymn M.N.W. from Melbourne. Pop. formed part of the Christian 44,510.

Bendzin, a tn. in the prov. of Poiterkow, Poland. It is one of the chief coal mining centres of S.W. Poland.

Benedek, Ludwig (1804-81), a famous Austrian general, was born at Odenburg, Hungary. He was a doctor's son. He started his career in the army in 1822. In 1846 he took part in the suppression of the Polish in the suppression, and peasants at Galicia, and distinguish himself. In 1847 he had command given him of a regiment in Italy, and again received command during the Hungarian cam-paign of 1849. Then he returned to Italy. He repelled the Piedmontese Italy. at Solferino, and won for himself still greater fame. In 1860 he became governor of Hungary. Six years later, 1866, he had command of the Northern Austrian army in the war with Prussia. He was completely defeated at Sadowa, and was sus-pended, a court-martial being ordered. This latter was dropped by the emperor's command. B. retired Graz, where he died.

Beneden, Pierre Joseph van (1809-94), Belgian zoologist and naturalist, was appointed head of the Louvain Natural History Museum in 1831. In 1835 he became a professor at the university of Ghent, and in the next year at the Catholic University, Louvain. In 1881 he was appointed president of the Academy of Sciences. Among his most notable works are Zoölogie Médicale (in collaboration with Gervais): Ostéographie des Célacés vivants et forsiles, 1868; and La Vie Animale et ses Mustères, 1863.

Benedetti, Vincent, Count (1817-1900), a Fr. statesman, born at Basila (Corrier et traput; there versions)

in Corsica. At twenty-three years of age he entered the foreign office. Five years later, in 1845, he was appointed consul in Egypt, and in 1848 consul at Palermo. In 1864 he was ambassador at Berlin. He drafted a secret treaty between France and Prussia, which was made public when war broke out in 1870. For this he was severely criticised, and he retired to Corsica. His defence was confirmed before his death, which occurred at Paris.

Benedicite. This is the canticle or hymn, beginning in Lat. Benedicite omnia opera Domine, and in Eng., 'O all ye works of the Lord, bless ye the Lord.' It is very like the 148th psalm, and is probably an enlargement of it. It occurs in the Gk, and Lat. Bible in the third chapter of Daniel, under the title of 'The Sang of the Three title of 'The Song of the Three Children.' It is said to have been sung by the three young Jews, Shadfrom the time of St. Chrysostom, and is still used in the Anglican Church.

Benedict, the name assumed by fourteen popes and one anti-pope. Of the earlier occupants of the papal chair who bore this name, little is known of importance concerning The following list gives the them. date of their accession and death. B. I., 573-S; B. II., 684-5; B. III., 855-S; B. IV., 906-3; B. V., 964-5; B. VI., 972-4; B. VII., 974-83.

Benedict FIII. (1012-24). In the

early days of his pontificate he was opposed by an anti-pope, Gregory, but was reinstated by the Emperor Henry II. In his days, the Saracens began their attacks upon the southern coast of Europe, and the same are also witnessed the beginning of the Italian settlements of the Normans. The pope was noted for his disciplinary policy, and opposed and forbade the

marriage of priests. Benedict IX., the nephew of the preceeding pope, who obtained succession of the papal chair at the age of twelve, in 1033. The unexampled licentionsness which corrupted his court, although tolerated by the emperor, caused the Romans to revolt and drive him out. He was replaced by a pope, Silvester, and later still another pope was elected in the person of one Gregory. Henry III., person of one Gregory. Henry III., the emperor, caused all three to be them by a pope.

two years later scized the papal

chair, but was again driven forth by the Romans. He died probably in the year 1056.

Benedict X. (1058-59). Elevated by the Roman barons, he was opposed by the great Hildebrand, who caused another pope to be elected, and who finally deposed and degraded Benedict.

Benedict XI. (1303-4). Was unant-mously elected, but was faced by great difficulties, the legacy of his predecessor, Boniface VIII. He died in the year after his election, probably poisoned by Nogaret, whom he had excommunicated.

Benedict XII., nephew of John XXII., whom he succeeded in 1334. Although elected by the influence

wrote a number of works which were after his death. nublished meddled but little in political matters. and his attempts at reforms, whilst good in themselves, were failures. He died in 1730.

Benedict XIV., a learned and distinguished occupant of the papal chair. Previous to his election to the monk and ecclesiastic, was born of a papacy he had been recognised as one noble Northumbrian family, his surof the leading members of the Church. states, but his reforms were not the court of King Oswiu. After two sweeping enough. He attempted also journeys to Rome (he later made

longed it for thirty years. Abandoned by the cardinals who had elected him. recognised nowhere save in Spain and Scotland, at times in fear of his life, he remained anti-pope until his death in 1423.

fourteen removed to Sublaco, a desert, of this order, and most of the richest place 40 m. distant, and concealed abbeys in England. Tanner (Notit. himself in a cavern. The monks of a Monast.) enumerates altogether 186 neighbouring monastery chose him establishments in England whose for their abbot, but their manners did revenues amounted to £55,577 14s. not suit him, and he retired to solitude Benediction (from Lat. henedico. not suit him, and he retired to solitude again; many followed him and put themselves under his direction: in a short time he founded twelve monas-He converted (in 528), the peopleat Monte Cassino from idolatry; here he founded other monasteries, and composed his Regula Monach-orum, or Rules for Monks, which did not receive papal sanction until fiftytwo years after his death.

Benedict, Sir Julius (1804-85), a com-

of nepotism, he strenuously opposed den. In 1825 he was appointed nepotism during his tenure of office. director of the Ger. opera at Vienna. He reformed the monastic orders, and In 1836 he came to spend the rest of his life in London. He was conductor Benedict XIII., a title held by of the Eng. opera at Drury Lane at two popes, Pedro de Luna, an antithe time of Balle's popularity. In pope (see below), and Francesco 1838 he composed the Gipsy's Warn-Orsini, who Leesme pope in 1724. A ing, The Bride of Venice in 1843, and great theologian and philosopher, who went to America in company with Jenny Lind on her oratorio tour. One of his most successful operas is the Lily of Killarney. He ranks amongst the most capable of Ger. musical composers. He was created a knight in 1871, and died in London.

Benedict Biscop (6281-690), Eng. name probably being Baducing. Dur-He did something to reform the papal, ing his early life he was a courtier at to reform the missionary methods of several more) he became a monk at the Jesuits in S. America, India, and Lerins. In 669 he escorted Theodore China. During the whole of his ponti- of Tarsus to Canterbury, and was at ficate he continued his studies, and the same time made abbot of St. also had a number of scholars at his Peter's Monastery at that place. also had a number of scholars at his Peter's Monastery at that place. court. He was learned, enlightened, some years later he made his third and tolerant. He died in May 1758. journey to Rome and returned with a Benedict XIII. (Pedro de Luna, see above), a learned and distintion with a learned and distintion of the most monastery at Wearmouth, on land solve and proper by the French umbria. In 682 he erected a dependent of the schism by voluntary literature and culture. He was the abdication, but by his firmness and literature and culture. He was the abdication, but by his firmness and pioneer of Saxon architecture, and his belief in his own cause he prograve impetus and opportunity to all the arts.

Benedictine, see LIQUEUR. Benedictine Order. The exact year when the monks who followed the rule of St. Benedict were first estab. as an order is unknown, but it made Benedict, Saint (4805-43), the great progress, there was first founder of the order of Benedictine order as well as monks. It was first monks, born at Nursia in Italy was introduced to England by St. Augustine. All our cathedral priones were great progress: there were nuns of this educated at Rome, but at the age of tine. All our cathedral priories were

Benediction (from Lat. benedico. to bless). It implies usually the conferring of a blessing, or an earnest wish for the welfare of a person or project. In the Catholic Church there is the sacerdotal B., which is performed only by the priest. In this acceptation of the function, only the power of the priests to resist evil forces is included, while in the vague interpretation of it by Christian churches any hope strengthened by poser and musician, born at Stuttgart. prayer is understood to deserve the His father was a Jewish banker. His name. Originally the B. was particu-studies, under Hummel, took place at larly resorted to in exorcism of evil Weimar, and under Weber at Dres- spirits, but the modern enlightened

mind, recognising as devils different Bs., are those not under the juris-spirits from those dreaded by our diction of a bishop, though regarding forefathers, widens this view very considerably in order completely to meet the greater significance. The Roman Catholic rite is performed generally by the priest barefooted and with uncovered head, and during the prayer holy water is sprinkled. Of these functions the B. of the Blessed Sacramentis the most popular. Among reformed churches the term is applied

to the words used by the preacher in dismissing his congregation.

Benedictus (Lat. bene, well, and dico, to say), a song of thanksgiving composed by Zacharias, at the circumcision of his son John the Baptist It commences in Lat. with 'B. qui venit in nomine Domini,' and in Eng. 'Blessed is He that cometh in the name of the Lord.' It has occurred since the 9th century in the service

of the Christian church.

Benedix, Julius Roderick (1811-73), a Ger. author and dramatist, was born at Leipzig. He was in succession a tenor, a journalist, a lecturer, and a stage manager. In none of these spheres, however, was his fame to be estab., though his great versatility won for him extreme popularity. was gifted with a vivid imagination which was particularly evident in his dramatic works, and a fund of humour that was prominently displayed in his comedies. These latter endeared him to his fellow countrymen, and made his name famous. They abound in witty dialogue, and humorous intricate plot, with a continual variety of scene and incident. His dramatic works are numerous.

Twenty-seven vols. have been collected at Leipzig. Several, such as Tête Moussue, have obtained great success. His literary works, apart from comedy and drama, are: Popular German Stories, pub. in 1839-40; '1813, 1814, 1815,' a book which presents scenes from the wars against sents scenes from the was a series of Napoleon I., and Scenes from Lines of Comedians, which was pub. in 1847. He died at Leipzig.

Benefi used in mland. ployed by the Lombards and in the laws of Charlemagne's constitutions. These lands were generally won by distinction in war, and were given as incentives to greater martial prowess. incentives to greater martial provess. Later the lands became grants of a hereditary feudal nature. To-day the word implies any variety of church dignity, and in particular, those of rectories and vicarages which are Bs. with the cure of souls (hence curacy), those differing from bishopries and later the privilege was extended to all cathedral dignitaries. Exempt, or as they are sometimes called, peculiar

residence they are under episcopal administration. The holding of a B. is dependent upon four conditions. Of these the first is Holy Orders; the second is Presentation, i.e. the formal donation of the B. by the patron; the third is Institution, at which cere-mony responsibility for the cure of souls is formally committed to the clergyman by the bishop; fourthly, there is Induction, the ceremony of giving the clergyman possession of the temporalities. The work involved in the holding of a B. entails public worship, baptism, marriage, burial, the ceremony of the Lord's Supper. and the vaguer duties of visits and communion with the parishloners. The properties connected with a rectory are the freehold of the house, the glebe, and tithes. A vicar, as distinct from a rector, does not enjoy all of these emoluments, being en-titled generally only to a portion of the ecclesiastical dues of a particular parish. But a vicar is entitled to reside in the rectory house. In Scotland Bs. are divided into temporalities and spiritualities, i.e. lands and teinds. The Putronage Act of 1874 regulates the election of its ministers. The Scottish minister has not the same rights in the church and churchyard as those held by ministers in England. His emoluments consist

of the glebe and manse. Beneficiary, in the law of both England and Scotland, a term used to denote any person who is in the en-joyment of, or is entitled to, any interest or estate held in trust by other persons. It is often doubtful in the case of charitable bequests who the Bs. really are, and the courts or commissioners occasionally, as a result of their inquiries, reform the charity, and so change the class of Bs. The trustees are liable to give an account of their actions to the Bs., and an interdict or injunction may be issued against them by the latter if they make a wrongful use of their

Benefit of Clergy, a term used in connection with a previous condition of English law. It demonstrates the power of the elergy and the ignorance of the people. Briefly, the benefit meant an exemption of clericals from the authority of secular magistrates after many purposeless modifications, in the reign of George IV. In Scotland the benefit was never recognised.

Societies, see FRIENDLY Benefit

SOCIETIES.

Beneke, Friedrich Eduard, a Ger. psychologist, was born at Berlin, 1798. He studied philosophy and theology at Halle and Berlin. He commenced his public life as a lecturer in 1820, and at that time pub. sev. pamphlets. His views were so directly opposed to the popular favour that he was for a time forbidden to express them in public. For three or four years he lived at Göttingen, earning a livell-hood by teaching. In 1827 he was once more allowed to resume his lectures at Berlin. He pub, many books on metaphysics and ethics, also large treatises upon philosophy. two books, Theory of Knowledge and Foundation of all Knowledge, are well known. In 1854 he suddenly disappeared; two years later his body was discovered in the canal at Charlotten-

Beneschau, a tn. of Bohemia, Austria, 18 m. S.S.E. of Budweis.

Pop. 7000.

Benevento, a tn. of Campania, Italy. It is the cap. of B. prov., and is situated on a hill of 400 ft., at the confluence of the Calore and Sabatto. Its population in 1901 was 17,227, while that of the commune was 24,137. Originally the old town of Beneventum stood on its site, a th. which is reputed to owe its foundation to Diomedes. The Romans defeated the Samnites in 314 B.C., who found shelter at Beneventum. During their final campaign of 275 B.C. the tn. was used by the Romans as a centre of their military activities. In 268 B.C. a Latin colony was founded there. Hitherto the tn. had borne the name of Maleventum, but now it assumed the above name, which was given it on account of the significance of its meaning. Antique remains testify to its importance, of which the most imposing is a triumphal arch erected to Trajan by the senate. The tn. became the residence of a powerful Lombard duchy and remained in a state of independence till 1053, when it was F ceded to Leo IX. It was united to S Italy in 1860, after having returned to the papacy in 1815. The tn. is subject to earthquake visitations, and considerable damage has been done. The prov. is 834 sq. m. in extent. The prin. industries are the manuf. of leather, parchment, and plated ware. Benevolence, a type of compulsory

loan exacted by kings who dispensed with legal justification. It originated in 1473 with Edward IV., though like contributions had been levied in previous reigns. They were not officially

called Bs., however. They were voted 'unlawful' in the reign of Richard III. in 1484, yet Richard often employed this illicit mode of enriching himself, as did Henry II. James I. ttempted its adoption they with the west. attempted its adoption, though with-out material success. Bs. were rendered illegal both by the Petition of Right, 1628, and by the Bill of Rights, 1689.

Benfeld, a tn. situated on the R. III. Alsace-Lorraine, Germany, in a dist. of great fertility. Its chief productions are tobacco, hops, and hemp. It was besieged by Count Ulrich of Würtemberg, 1331, and by the Armag-nacs, 1444. It was ceded to Sweden in 1632, but it came into the hands of the Gers. by the treaty of Frankfort.

Benfey, Theodor (1809-81), a Ger. philologist of Jewish parentage, born at Nörten, near Göttingen. He was intended to enter the medical pro-fession, but he preferred literature. He studied at Göttingen, Heidelberg, and Munich, and afterwards settled in Frankfort as a teacher. He pub. many manuals and translations, and in 1866 he sent forth his great work, the Sanskrit-English dictionary. All his works were produced under stress of great poverty. As a result of his unflagging labours for a period of over half a century, Sanscrit philology owes more to him than to almost any other scholar. His death occurred at Göttingen.

Bengal, a prov. of British India. Its boundaries are: on the N, Nepal and Sikkim; on the E., Eastern B. and Assam; on the S., the Bay of B. and Madras; and on the W., the Cen and Madras; and on the W., the Central and United Provinces. Its area is 141,580 sq. m., and its pop. 54,996,806. Within its limits are the provs. of Behar, Orissa, and Chota Nagpur, and the W. portion of the valley of the Ganges. This area is divided into six British divs., Bhagalpur, Patha, Burdwan, Chota Nagpur, and Orissa. In all there are thirty-three British dists. in the prov., named respectively. Burdwan, Birlhum respectively, Burdwan, Birbhum, Bankura, Midnapore, Hugli, Howrah, Twanty four Pargunas Colombia

balpur, with the native Sikkim states and Orissa and Chota Nagpur. Geographically, B. is divided into B. proper, Behar, Orissa, and Chota Nagpur. The first three consist of large river valleys, while the last. Chota Nagpur, is a mountainous dist. The Ganges valley forms the northern portion of B. proper, and is one of the most richly endowed, and hence most

thickly populated, regions of the W. The Andaman and Nicoba are world. Natural productions are ex-the chief groups of is., which are very traordinarily abundant, and comprise numerous. tea, indigo, turmeric, lac, opiumpoppy, grain, pepper, ginger, quinine, spices and drugs, oil-seeds, cotton, mulberry, jute, timber, all in mar-vellous profusion. Every conceivable material necessary for human sub-cistence is to be found. The huge waters of the Ganges naturally result in the large tracts of alluvial deposit at its mouth. The climate is varied. In the Himalayas snow is found all the year round, while in Behar scorching winds and natural vapour baths are climatic features. The thermometer registers a range of temp. between 52° F. and 103° F. The rainfall fluctuates between 65 in. in the delta and 37 in. in Behar. The rivers are Ganges, Sone, Gogra, Gandak, Kusi, Tista, Hugli, Damodar, and Maha-nadi. The annual floods of the Ganges delta prepare the soil for the cultivation of rice, and the remarkable sight is often seen of rice-fields covered in considerable depths of water. courses of the various streams are continually changing their direction, hence a man's property is diminished or augmented at different times. The chief mineral is coal, and its production rivals that of the gold of Mysore in value. The most valuable mine is at Raniganji, and is 500 sq. m. in area. Calcutta is the centre of the sea trade of B., whose principal exports include jute, tea, hides, opium, rice, oil-seeds, indigo, and lac. Adequate railway communication is estab., of which the E India is the greatest B, is by

Indian and general enlightenment. It has 2500 secondary schools, over 50.000 elementary institutions, and numerous university colleges. The Mohamous university colleges. The Mohammedan conquest of B. took place at the beginning of the 13th century. Four centuries later the East India Company made its first settlement and formed the nucleus of the British empire of India. The rights of proprietors and cultivators were assured and protected by the Permanent Settlement of the Land Revenue and the Tenancy Acts respectively.

Bengal, Bay of, is a part of the dian Ocean. It stretches between Indian Ocean. India and further India, washing the whole of the eastern side of the coun-It is visited by the monsoons, try. which prevail over the whole area of the ocean. Many large rivers empty themselves into the bay-the Ganges, and Brahmaputra from the N., while from the E. it receives the Irawadi, and from the W. the Mahanade and There are many good Godavery. ports on the E., but few, if any, on the by John Wesley.

Bengal Gram (Cicer arietinum), or chick pea, a leguminous plant grown largely in India and in Egypt. The seeds are eaten raw or cooked, or ground into flour for cakes. The leaves and stems exude a moisture containing oxalic acid, which is used medicinally.

Bengal Hemp (Cannabis Indica) is used in sev. forms; the dried leaves and stalks, called bhang, are (1) smoked with or without tobacco, (2) made into a sweetmeat with honey, (3) or into the intoxicating compound called hashish. The best hashish, however, is made from the flowering and fruiting heads (ganja). The resin of the plant is called charas.

Bengali Language, one of the forms speech comprising the eastern group of the Indo-Aryan tongues. It resembles Oriya and Assamese, since all three are derived from the same source. They are immediately de-scended from the Māgādhi Prakrit, and the centre of that language was Behar. Bengali has two main dialects. of which the western is the more pure. The oldest writer of Bengali is the poet Candi Das, a Vaishnava. A school of poets was founded by him,

who wrote hymns to Krishna.

Bengal Lights, or blue light, as it is called, is a vivid signal light used at sea. It is a composition of nitre, sulphur, and black sulphide of antimony, ground to a powder, dried, and mixed, by weight, in the proportion; nitre 6, sulphur 2, and black sulphide of antimony 1. When this is lighted, a most brilliant blue light which illuminates the sea for many miles around is the result. The B. light is used in cases of shipwreck. Owing to the poisonous fumes from it the light cannot be used safely in enclosed spaces.

Bengazi, a scaport of the N. coast of Africa. It is the cap, of the saulak of Barca (Bengazi). Its situation is a narrow strip of land between the Gulf of Sidra and a salt marshy tract. Vessels of light draught only are able to enter the harbour, which is spoiled by silt. The tn. exports barley, while its former trade in Sudan products now travels via Tripoli. Of all the Ottoman possessions B. was the least enlightened. Its pop. is about 25,000.

Bengel, Johann Albrecht (1687-1752), scholar and theological writer, bornat Winnenden, near Stuttgart. In 1703 he entered the theological college at Tübingen. Later he became prelate at Wurtemberg. He pub. an excellent ed. of the Greek Testament, and his theological works were much esteemed

Benger, Elizabeth Ogilvie (1778-tribes, as Beni Temim, the sons of 1827), a biographical writer, now for-Temim, or the Teminides. gotten, whose poverty was such that! when a girl she used to go and read. It rises in the Andes, and has a course the open pages displayed in the book- of about 1000 m. Its current is very sellers' windows, hoping from day to sellers' windows, hoping from day to day that the page might be turned over; this was in Wells, and in 1802 she came to London, where she met many literary ladies, such as Miss Joanna Baillie; her reputation was estab. by her literary biographies.

Benguela, or Benguella, a tn. in Portuguese W. Africa. It is situated on B. Bay, and is the cap. of the dist.

of that name. Its trade, once important, particularly in slaves, has since rapidly lessened. Its white pop.

numbers 1500.

Benguet, a fertile prov. of the Philippine Is. Rice is grown and Rice is grown and The United States tropical fruits. have also introduced grapes, figs, blackberries, and strawberries into the province with successful results. Coffee is also grown in the prov., and

of a very fine quality.

Benhadad, the name of two (or, according to some, three) kings of Damascus. B. I., son of Tabrimmon, was an energetic fighter. He besieged Ahab of Israel in Samaria (2 Kings vi.), Anab of Israel in Sanaria (2 Kings vi.), and long opposed Shalmaneser, the Assyrian king. His death took place between 846 and 842 B.C. (see 2 Kings viii. 7-15. In his youth B. had been an ally of Asa, king of Judah, but some hold that the ally of Asa was another king of the same name. B. II. son of Hazael, and probably the grandson of B. I. He was thrice defeated by Joash, king of Israel (2 Kings xiii. 25). More probably Mari, and not B. is the correct name of this king, as Rammannirari III. mentions a king of Damascus called Mari whom he besieged at Damascus. B., like his father, grievously oppressed Israel.

Benham, William (1831-1910), Eng. theologian, was tutor at St. Mark's College, Chelsea, 1857-64: professor of history at Queen's College, London, 1864-73; and rector of St. Edmund's, London, in 1882. He was made an hon. canon of Canterbury in 1885. He trans. Thomas a Kempis' Imitation of Christ, 1871, and brought out an ed. of Cowper's Letters in 1883. His best known works are: A Short History of the Episcopal Church in America, 1884; A Dictionary of Religion, 1887; and (in collaboration with another) Life of Archbishop Tail, 1891. He was also chief editor of the Ancient and Modern Library of Theological

Literature.

Beni, a riv. in S. America, Bolivia. strong, so it is not navigable. used for the canoes of the bark-gatherers and india-rubber collectors.

Beni, a dept. of Bolivia, S. America, with a good climate and fertile soil, yet little known and thinly populated. Trinidad is the chief tn. Pop. 29,000.

Benicarlo, a scaport of Spain, in Castellon. It manufs, a red wine of considerable strength, and also brandy. The wine is exported chiefly to Bordeaux, where it is mixed with lighter wine for table use. Pop. 7000.

Benicia, a scaport and banking city in Solano co., California, on the Strait of Carquinez, about 25 m. by water N.E. of San Francisco with which it is connected by the S. Pacific Railway. It has extensive wharves, shipyards, a United States arsenal, and

barracks.

Beni-Hassan-el-Quadym, or Old Beni-Hassan, a vil. of Middle Egypt, situated near the E. bank of the Nile. In the neighbourhood are catacombs

of considerable extent.

Beni-Israel ('Sons of Israel'), a colony of Jewish descent settled on the Malabar coast, Rombay presidency, India. Although they acknowledge the Mosaic laws and have traditions which suggest an ancient Judaic invasion of India, they repudi-ate the name of Jews. According to some authorities, the B.-I. settlement in India dates no farther back than the 15th century, while it is supposed by others to be a remnant of the ten They are clearly distinct tribes. from those Jews who in modern times have gone to India for trading purposes. The colony numbers about 5000.

Benin, a country of British W. Africa and part of Southern Nigeria. Its area was at one time very extensive, but the gradual securing of in dependence by small tribes occupying some of its states, has considerably lessened it. The characteristics of B., climatic, botanic, and zoologic, resemble those of S. Nigeria. It has a very low coast-line, interrupted by numerous creeks and forming a large swamp covered with mangroves. The name B. also embraces a city and riv. in the same locality. Its inhab. are pure negroes. The tn. is situated on Gwato Creek, and exports palm oil via Gwato, 30 m. distant. Coral exists in abundance.

Benin, Bight of, in the Gulf of Guinea, between Capes Formosa and Beni, the plural of the Arabic word St. Paul. It consists of a continuous Ebn' or 'Ibn,' a son. It occurs in line of low, marshy, sandy shore, including the part of many names of families or estuaries more especially towards Cape Formosa, where they form

which flows into the Atlantic after a course of 70 m. It forms the western boundary of the Oils R. Protectorate.

Beni Saf, a seaport, with harbour of 26.2 ft. depth, in Algeria, 30 m. N. of Tlemen, in the prov. of Oran. It exports considerable quantities of iron ore found in the district.

a tn. and prov. t. The tn. is on the W Beni-Suef, a Central Egypt. bank of the Nile, 63 m. S.S.W. of Cairo, and is the entrepôt for the produce of the prov. of Fayoum. It has a large cotton factory and alabaster quarries. Pop. (1897) 18,229.

Benjamin, the youngest Jacob and Rachel. His mot son His mother, who died at his birth, gave him the name of 'Son of my sorrow '(Ben-ōni), but Jacob altered it to its present meaning, 'Son of my right hand' (or prosperity). He gave his name to a

tribe of Israel.

Benjamin, a tribe of Israel, named from the youngest son of Jacob and Rachel. When the tribe entered Palestine it was given an area bounded by Ephraim, Dan, and Judah. The numbers of the tribe sunk to a low ebb during the control of the Judges. but increased again by means of an addition of 400 virgins who were captured from Shiloh. In spite of the circumstance that its ter, lay to the W. and E., it was physically united with Judah, and it owed its increasing importance to its position between Judah and Ephraim. It is called 'the least of the tribes,' yet it has a great antique value regarding its place in the history of the O.T., as is deter-mined by the royal sanctuary at Bethel, the position of Jerusalem as the centre of religious adoration, and its associations with the history of Samuel.

Benjamin, Judah Philip (1811-84), eminent American lawyer and politician, born at St. Croix, W. Indies. He was made coupreme court in counsellor of supreme court in 1848, and from 1853-61 represented Louisiania in the senate of the United States. In the latter year he withdrew from senate to become attorney-general in """'sional gov. of

cy, being sub-retary of war,

1861-62, and chief secretary of state, 1862-65. After the surrender of the Confederates, B. escaped to England, and, entering Lincoln's Inn, was was called to the bar in June 1866. practised on the northern circuit, and in 1872 was made queen's counsel. Owing to ill-health he retired to live in Paris in 1882, where he died.

Benjamin of Tudela, a Jewish alluvial islands, which are part of the rabbi, and author of the Hincury, delta of the Niger.

Benin River, a riv. of W. Africa, born in the kingdom of Navarre. He travelled from Constantinople through Alexandria in Egypt and Persia to the frontiers of China. Sasius, who follows Wolfuns's Bibliotheen Hebraica, places the date of Rabbi B': travels about 1160. They ended in the year in which he died, A.D. 1173. B.'s principal view seems to have been to represent the number and state of his brethren in different parts of the It has been translated into world. most European languages.

Benjamin Tree, or Styrax benzoin, native of Sumatra and Java. belongs to the order Styracaceæ. vields ""lled gumbenzo which is used nanuf. of

incense and in perfumery.

Benkovac, a tn. in Dalmatia, Austria, about 20 m. S.E. of Zara; pop. (1900) 14,197.

Ben Lawers, a mt. in Perthshire, Scotland, about 32 m. W.N.W. of Perth, on the N.W. side of Loch Tay. Commands a very fine view. Height 3985 feet.

Ben Ledi (Gaelic for 'the hill of God'), a mt. in Perthshire, Scotland, 5 m. N.W. of Callander. Height m. 2875 feet.

Ben Lomond, a mt. in Stirlingshire, Scotland, E. of Loch Lomond, and about 26 m. N.W. of Glasgow. An exten the from N. si

Height 3192 feet.

Ben Macdhui, or Muichdui (Gaelic mt. of the black pig'), a mt. in Aberdeenshire, on the border of Aberdeenshire, on the border or Banfishire. The second highest mt. in Great Britain, its elevation being Its summit is flat and bare. 4296 ft.

Ben More, a mt., 3843 ft. high, in Perthshire, Scotland.

Benmore Head, a basaltic rock and Ircland. or teel ceds of ised in ication. vourite

nixture

Bennett, Enoch Arnold, English Born in novelist and playwright. N. Staffordshire, 1867, and educated at Newcastle Middle School. Commenced to study law, but abandoned it in 1893 for journalism. Many of his novels deal with the pottery towns, and these are among his best books. Perhaps his best novel is *The Old Wires' Tale*, 1908. Other later novels are: Clayhanger, 1910; The Card, 1911; and Hilda Lessways, 1911, this latter

being a sequel to Clayhanger. Among Queen (a cantata) are among his best his plays are: Cupid and Common known works. sense, 1908; What the Public Wants,

Ben Nevis, the highest mt. in the 1909; The Honeymoon, 1911; and British Isles, situated in the co. of (with E. Knoblaugh) Milestones, Inverness, 41 m. E.S.E. of Fort

ness' side of literature is set forth. Bennett, James Gordon (1795-1872), an eminent American journalist, which consists of a large plateau, founder and editor of the New York, snow lies in some gorges all the year Herald, was born at New Mill, Banff-round. An extensive view is obtained shire, in Scotland. Was educated for the Rom. Catholic priesthood, but emigrated to America in 1819. carned his living for a time by teaching languages and translation, but eventually became a successful journalist. founding the NewYork Herald in 1835.

Bennett, James Gordon, son of the above, born May 10, 1841. He succeeded to the management of the New York Herald on his father's death, and is the present editor and, proprietor. He despatched H. M. Stanley to Central Africa to find Livingstone, arranged the Jeannette Polar expedition, and promoted, with J. W. Mackay, the Commercial Cable Company in 1883.

Bennett, John Hughes (1812-75), a physician and pathologist, was born in London. He was educated at Exeter and Edinburgh, and studied for four years in Paris and Germany. In 1841 he began to lecture on histology in Edinburgh, and in 1843 was appointed professor of the Institutes This post of Medicine at Edinburgh. he resigned in 1874. He published numerous treatises on the subject of

medicine.

Bennett, Sir William Sterndall, Mus.D., D.C.L. (1816-75), Eng. coinposer and pianist, born at Sheffield. where he studied till 1855. 1838 was elected member of the to the Philharmonic Society the same

(with E. Knoulaugh) Muesiones, inverness, 42 m. E.S.E. of Low 1912. Resides much in France, and is William. Its elevation is 4406 ft., but proud of having written a piece of on account of its bulk it is much less personal autobiography, The Trulh striking than many other Highland about an Author, in which the busi-mts. of lower altitude. The N.E. side is bounded by a precipice of about 1500 ft. in depth. On its summit, which consists of a large plateau, therefrom, every mountain of any size in Scotland being visible. From 1881 to 1904 meteorological observations were taken at the summit, and until the erection in 1883 of an observatory and the construction of a bridle road leading up the side of the mt., daily ascents were made for that purpose. The base of the mt. which, in circumference, measures about 30 m., is composed principally of granite and gneiss, while the upper part is formed chiefly of porphyry.

Bennigsen, Levin Augustus Theophilus, Count (1745-1826), a Russian general, was born at Brunswick. After a period in the Hanoverian service he entered the Russian army and gained distinction in the Turkish and Polish wars. Aided in the assassina-tion of Tsar Paul V. Commanded the Russian armies against Napoleon at Poltusk (1806) and Eylau (1807) and was present at Borodino (1812) and

Leinžig (1813).

Bennington, a township of the co. of B., Vermont, U.S.A. It has woollen mills, and manufs. stereoscopes,

boxes, and linen. Pop. (1900) 8033. Benoit. Peter Léonard Léonold (1834-1901), Flemish composer, born at Harlebeke, Flanders. In 1851 B. entered the Brussels conservatoire, There he Royal Academy of Music and then les Montagnes, for the Park Theatre. visited Germany, where, at Düssel-dorf and Lelpzig, he made the action and Lelpzig, he made the action and Lelpzig in France and Germany B. returned to Antwerp and quaintance of Mendelssohn and there produced a sacred tetralogy, Schumann. On his return to England consisting of his Cantale de Noël, a he received a warm reception, and in Mass, a Te Deum, and a Requiem; in this music be meant to introduce the Royal Society of Music. In 1856 he world to a new Fiemish school of became professor of music at Cam-music, but there is nothing in his bridge, and was engaged as conductor music that characterises it as specially Flemish.

year. This latter post he resigned on being appointed prin. of the Royal Academy of Music in 1866. He received the honorary degree of D.C.L. (Aronique des Ducs de Normadie at from Oxford University in 1870, and the following year was knighted. He suggestion of Henry II. of Englied at St. John's Wood.

With the exception of the opera, B. attempted almost every form of merides belli Trojan of Dictys of vocal and instrumental composition. Crete. The story is not classical in the Gr. and the Epherone and instrumental composition. vocal and instrumental composition. Crete. The story is not classical in The Wood Nymphs and The May spirit. The Gk. heroes act like personages of medieval romance. The story at Birmingham. commences with Jason's theft of the Golden Fleece and ends with the return of the Gk. heroes after the sack of Troy. B. is also supposed to be the author of Enéas and The Romance of Thebes (based on Statius)

Ben-Rhydding is a hydropathic establishment in the W. Riding of Yorkshire, on the bank of the R. Wharfe, 16 m. N.W. of Leeds.

Bensberg, a vil., prov. Rhineland, in the dist. of Cologne, Prussia, about 10 m. E. of Cologne. B. has rich lead, iron, and zinc mines. Pop. 10,410. Bensheim, an old. in. of Hesse, 14 m. S. of Darmstadt. Pop. about

7500.

Bensley, Thomas (d. 1833), London printer and producer of some of the finest and most magnificent books of that period. His chief production was Macklin's folio Bible, and his octavo Shakespeare is also well known. His

typography was excellent.

Benson, Arthur Christopher, author and essayist, born on April 24, 1862, the eldest son of Archbishop Educated at Eton and King's College, Cambridge, he became a master at Eton in 1885, continuing there until 1903 when he was elected a Fellow of Magdalene College. In 1886 he produced his first work of fiction (The Memoirs of Arthur Hamilton) under the nom de plume of Christopher Carr. Two vols. Poems' and Lyrics' pub. in 1893 and 1895 respectively gave him a reputation as a writer of verse. Further literary productions of his are: A Study of Archishop Laud, 1887; Lord Vyet and other Poems, 1897; The Life of Archishop Benson, 1899; Fasti Elonensis, 1899; The Scholmerer, 1999; Hause of the Scholmere The Schoolmaster, 1902; House of Quiet, 1903. Monographs in the Quiet, untet, 1903. Alonographs in the English Men of Letters' series on D. G. Rossetti, 1904; Edward Fitzgerald, 1905; Walter Pater, 1906, Peace and other Poems, 1905; The Upton Letters, 1905; From a College Window, 1906; Thread of Gold, 1906; Parel of Still Weley 1907. He also 3 Beside Still Waters, 1907. He also ed. with Lord Esher The Correspondence of Queen Victoria, 1907. Benson, Edward Frederick, author,

son of Archbishop B., born on July 24, 1867. He was educated at Mariborough and King's College, Cambridge. From 1892 to 1895 he was engaged in investigations at Athens on behalf of the British Archælogical Speiety, and was subsequently similarly employed in Egypt in the interests of the Hellenic Society. In 103 he pub. his first novel Dodo, a stary of secrety life. Many further novels from his pen have since

appeared). Benson, Edward White (1829-96), stems. A. (or Apera) spica-venti is Archbishop of Canterbury, was born the silky B. G., or windward-spiked

Entering Trinity College, Cambridge, in 1848, he was elected fellow in 1853. From this date until 1859 he was a master at Rugby, being appointed in the latter year head master of the newly opened Wellington College. In 186 he was made prebendary, and three years later, chancellor of Lincoln. It 1877 he was transferred to Cornwal to become the first Bishop of Truro and on the death of Dr. Tait in 1883, succeeded him as Primate e England.

As primate he successfully cultivated cordial relations with the eastern churches and took an active part in eccles. legislation. He im parted new vigour to church life in England and reorganised the interna administration of the church. Many of his numerous writings possess con siderable scholastic and antiquaria value.

Benson, Frank R., actor-manager born in 1858. His education was a Winchester and Oxford. In 1884 be founded the Shakespearian repertoin company which bears his name. He has also been responsible for most o the Shakespearian festivals at Strat ford-on-Avon. In 1886 he married Miss Constance Featherstonhaugh.

Benson, Robert Hugh, author and priest of the Roman Church, born in 1871, the son of Archbishop B. He was educated at Eton and Cambridge, and held curacies for some years as a priest of the Established Church. He has written both novels and religious works. The best known are:
The Light Invisible, By What Authority? The Conventionalists, The Sentimentalists, The Religion of the Plain Man, The Dawn of All.

Bent, James Theodore (1852-97),
The travellor and probabolists.

Eng. traveller and archeologist, was born near Leeds. He was educated at Repton and Oxford (WadhamCollege). He became acquainted with Italy and Greece, and in 1885 commenced investigations in Asia Minor. In 1891 he visited S. Africa, exploring the Great Zimbabwe ruins in Mashona-land. In 1893 he explored parts of Arabia and Abyssinia. Chiefworks: The Cyclades, or Life among the Insular Greeks, 1885; The Ruined Cities of Mashonaland, 1892; The Sacred City of the Ethiopians, 1893. In 1900

his wife published Southern Arabia.

Bent Grass is a name applied to many varieties of Graminea under the generic name of Agrostis which A. alba, grow in a northern temp. the white B. G., marsh B. G., or florin grass, is valuable as food for cattle; it creeps along the ground and roots at the nodes of its bent and wiry

Britain. A. vulgaris and A. stolonifer are varieties of A. alba; A. canina is the brown B. G. which grows on

peaty soil.

Bentham, George (1800-84), English botanist, born at Stoke, near Portsmouth. A nephew of Jeremy B., he was attracted to the study of botany through the applicability thereto of the analytical methods learnt from his uncle. For some years he lived in France managing his father's estate, eventually coming to England to study law and to assist his uncle. On his uncle's death in 1832 he was able to follow up more fully his scientific inclinations, and finally in 1642 he removed to Herefordshire to devote himself entirely to science. The cost of maintaining his herbarium proved too expensive, however, and in 1854 he presented his collection to Kew Gardens, and himself resided and worked there until the year of his death. He produced several important treatises on botany, the chief being Genera Plantarum.

Bentham, James, was educated at Trinity College, Cambridge, and in 1736 became a minor canon of Ely and after various preferments obtained a prebendal stell in that cathedral in 1779. From his first connection with the church of Ely, Mr. B. appears to have directed his attention to the study of church architecture, the varieties of which, from the carliest period to the time of the Reformation. tion, : His . of Ely was of the best pub. ... works on eccles, antiquities in our language. He died at his prebendal language. house at Ely, where he had resided for the greater part of his life, in 1794.

Bentham, Jeremy (1748-1832), a writer on law and political economy whose influence was greater than his fame; the son of Jeremiah B., a solicitor of London. Educated at Westminster and Oxford. Studied law and was called to the bar about 1772, but did not practise to any great extent. He had attended, at Oxford, Blackstone's lectures on Eng. law, but was not satisfied with him. His first publication, Fragment on Government, 1776, was an attack Johnson to Dunning. In 1780 he wrote his *Principles of Morals and Legislation*; it was printed but not published until 1789. In 1785 he went abroad and travelled over the greater part of Europe and on his revenie part of Europe, and on his return in 1791 pub. his Panopticon on the Inspection House, a valuable work on prison discipline. This was taken up by the gov., experimented upon at great expense, and dropped. At this

grass, which is found commonly in time B.'s fame abroad was greater than here, and every embryo-republic looked to him. Borrow met an Alcayde near Finisterre who spoke of the 'great Baintham.' From about 1817 on he was bencher of Lincoln's Inn; he died at Westminster. Among his other works are Discourse on Civil and Penal Legislation, 1802; Punishments and Rewards, 1811; Parliamentary Reform Calechism, 1817; A Rationale of Judicial Evidence. He was the prophet of Utilitarianism, but was inclined to let his personal feelings get the better of his philosophy-not an uncommon thing. He is still regarded in the light of a Solomon by money-lenders, extracts from his Defence of Usury being still hung round their rooms like biblical texts in a Sunday-school. He left his body to be dissected, and his skeleton may be seen at the University College, London. J. H. Burton brought out an ed. of his works, with a Life by Sir John Bowring, 1844. See Study of Life and Work of Bentham, Atkinson, 1903.

Bentham, Sir Samuel (1757-1832), naval architect and author of several works on naval administration, was the brother of Jeremy B. He travelled for some years in Russia, and became an officer in the Russian service. On his return to England, he became inspector-general of naval works and naval architect and engineer.

Benthamia, a genus of plant of the natural order Cornaccæ. B. frugifera a native of India is found to thrive in the open air in the S. of England. possesses a mulberry-like fruit and a

fragrant bloom.

Bentheim, a dist. of Prussia which includes the forest of B., where is situated the old castle of the counts of B. Pop. 35,000. The chief tn. of the dist., B., is celebrated for its sulphurous mineral springs, and has manufs. of bricks, and cotton-weaving. Pop. 3000.

Bentinck, William (c. 1649-1709), first Earl of Portland, the son of Henry B. of Diepenheim, Overyssel. In his youth he was attached to the Orange household and grew to be William III.'s friend and confidential adviser. He negotiated William's marriage with Mary, daughter of James II., and was entrusted with a large share in the preparations for William's landing in England in 1688, the success of which placed William and Mary on the English throne. was rewarded for his services by being created Earl of Portland and receiv ing other honours. Although he held military commands in the wars with France and in Ireland he was chiefly employed on diplomatic missions. 1699 he grew intensely jealous of other offices.

Bentinck, Lord William Henry Cavendish (1738-1809), third Duke of Portland. Entered parliament as a staunch Whig in 1761, and held office under Rockingham in 1765 and Was put forward as nominal leader of the coalition ministry by Lord North and Fox in April, 1783; but growing weary of Whig dissen-sions, he withdrew into private life soon after its defeat in the following December. With the events of the French Revolution his interest in politics reawakened, and for seven years he was Home Secretary in Pitt's Tory administration. As leader of the 'Ministry of all the Talents' in 1807 he was second time Prime Minister, but being unequal to the task, re-signed in October 1809. A few weeks signed in classification later he died.

William Henry Cavendish (1774-1839), a general and administrator, second son of the third Duke of Portland. Entered Entered the army in 1791, and in 1803 was nominated governor of Madras, but certain reforms he introduced having provoked a sepoy mutiny, was re-called in 1807. The following year he was sent to Portugal and served under Sir J. Moore at Corunna. Subsequently, he proceeded as envoy to Sicily and commanded the British forces there. Leaving Sicily in 1814 he held no post until 1827, when he succeeded Lord Amherst as governorgeneral of India. During a popular and successful administration lasting eight years he introduced many reforms. On his return to England he sat as M.P. for Glasgow. He died at Paris.

Bentinck, Lord William George Frederick Cavendish (1802-48), poli-tician and sportsman, the third son of the fourth Duke of Portland. Entering the army in 1819, he re-tired in 1822 to become private secretary to his uncle, George Canning, whom, in 1828, he succeeded as M.P. for Lyme Regis. At first professing no party, he afterwards attached himself to the Conservatives and voted with them until 1846, when he became leader of the Protectionist party, created in consequence of Sir R. Peel's conversion to Free Trade principles. Lord George became a vigorous speaker in parliament, displaying intense bitterness towards Peel. He died suddenly on Sept. 21, at Welbeck. He was at one time a great patron of the turf, but aban-

court favourites and resigned all his butcher-birds and shrikes, and feeds on carrion and reptiles.

Bentivoglio, Ercole, was grandson of Giovanni. He was born at Bologna He was employed by the in 1506. House of Este in sev. important missions, during one of which he died at Venice in 1573. Ercole wrote some Satires, which are considered next in merit to those of Ariosto, and also several Commedie, which were much applanded at the time; he was also a lyric poet of some celebrity.

Bentivoglio, Giovanni, son of Annibale B., who, after being for some years at the head of the commonwealth of Bologna, was murdered by a rival faction in 1445. Giovanni was then a boy of six years of acc. but in 1462 he made himself master of Bologna. Though stern and vindictive in his gov.. like his more illustrious contemporary, Lorenzo de' Medici, B. was a patron of the arts and of learning; he adorned Bologna with fine buildings and made collections of statues and paintings, and of MSS. Pope Julius II. expelled him from Bologna in 1506, and after forty-four years' dominion he was obliged to escape with his family into the Milanese ter., where he died two years afterwards at the age of seventy. His two sons were replaced by the Fr. in 1511 at the head of the gov. of Bologna, but in the next year, the Fr. being obliged to leave Italy, Bologna surrendered again to the pope in June, 1512, and the Bs. emigrated to

Preceding century. He studied at Padua, and returned to Ferrara in 1597. When the pope soon after came to Ferrara he took particular notice of young Guido; and when Guido in 1601 proceeded to Rome he was made a prelate of the papal court. After the death of Clement in 1605 his successor, Paul V., sent him as nuncio to Flanders, where he wrote his historical work on the insurrection of that country against the Spaniards in 1566 (Della Guerra di Fiandra, in three parts, 3 vols. 4to, Cologne, 1632-9). In 1616 B. was sent as nuncio to France, where he won the favour of Louis XIII. and his court by the mildness and courteousness of his manners and his prudence and tact in diplomatic affairs.

The other works of B. are Relazioni a great patron of the turf, but abandoned his sporting pursuits on entering into politics.

Bentivi, or Bientiveo, the Brazilian name of the Tyrannus sulphuratus, a species of Tyrannidæ. It is related to 261

1648: this is a sort of diary of his life, usual, and as usual B. won. pub. after his death. Lettere, 8vo,

Rome, 1654.

Bentley, Richard (1662-1742), divine. scholar, and critic; born at Oulton in Yorkshire of humble parents; edu-cated at Wakefield and St. John's College, Cambridge. He became a schoolmaster at Spalding, 1682, but left this words; if his criticisms and emenda-to be private tutor to the son of Dr. tions are prosaic, they are ingenious, Stillingfleet (afterwards Bishop of and though he was unable to appre-He accompanied his Worcester). charge to Oxford, and was soon admitted to the degree of M.A. Here he had access to the Bodleian Library, and made the friendship of Mill, the editor of the Greek Testament, and Bernard, then Savilian professor. To the ed. of Callimachus by Gravius, in 1697, he contributed a collection of fragments of that poet. He laid the foundation of his reputation in a disscrtation on an obscure chronicler, Malclas by name, which was pub. with an appendix to Dr. Mill's edition of the author in 1691. In 1692 he was appointed keeper of the King's Library, and in 1694 Boyle Lecturer; his degree of D.D. he took at Cambridge in 1696. Now it was that his famous quarrels with the Hon. C. Boyle began; the latter was to edit the Enistics of Phalaris, and noticing (rightly or not) some want of courtesy on the part of B. regarding the loan of a certain manuscript in the King's Library, animadverted upon it with some petulance in his preface. B., who had decided before (as was right) that these epistles were spurious, said so in Wotton's Reflections on Ancient and Modern Learning, and criticised Boyle's performance with some as perity. Whereupon all the wits of Christchurch, chief among whom was Atterbury, set their heads together and wrote an answer, to the delight of the town, with whom the arrogant B. was in little favour. Theirs was the wit, but B. had the learning. In 1700 he became master of Trinity College, Cambridge, and next year he married. He helped Kuster with an edition of Suidas, and pub. an edition of Horace, 1711: he wrote two critical letters on Aristophanes, and in 1708 sent to Hem-1 sterhuis a valuable letter containing emendations of the fragments of comic writers in Julius Pollux's Onomasticon, an ed. of which Hemsterhuis had just pub. If his learning was great, his manners were harsh and overbearing, and he quarrelled with the seniors. He was deprived by the visitor, Bishop Greene, but B., by a number of expedients, resisted the deprivation for four years, and the matter was dropped. In 1717 he matter was dropped. In 1717 he was, by his bold and unscrupulous manœuvres, elected regius professor of divinity; litigation followed as

effected the publication of Cote's ed. of Newton in 1709. His valuable ed. of Terence appeared in 1726. He undertook an ed. of Paradise Lost in 1731, supposing that Milton's amanuensis was likely to have committed blunders in taking down the poet's ciate the effect on Milton of It. poetry and romantic study, yet Pope, who was no genius at editing himself, and in the matter of verbal criticism was not worthy to comb B.'s wig, had no business to put him into the Dunciad. Of B. we can only say that what he lacked in manners and modesty (and he lacked a good deal) he made up in ne neased a good deal) he hade up in learning. His style was strong and flexible. Swift's Battle of the Books is an account of B,'s quarrel with Boyle. See Macaulay's 'Atterbury' in Ency. Bril.; Life of Bentley, by Monk, 1833, by Jebb, 1882.

Benton, Thomas Hart (1782-1858), an American statesman, was born at Hillsborough in N. Carolina on March He was brought up near the border of the Indian country and developed strong democratic principles. He represented Missouri in the United States senate from 1821 to 1851, being eventually rejected on account of his opposition to slavery. His attitude on this question, opposition to the proposed establishment of a U.S. bank, and his strong advocacy of American expansion in the W., made him prominent in American politics. He died at Washington on April 10.

Benton Harbour, a city in Berrien. co. of Michigan, United States, on the Paw-Paw R. Besides shipping large quantities of fruit, it has many manufactures. Pop. 4000.

Benue (also Binue and Benuwe) the largest and most important affluent of the R. Niger, W. Africa, which it joins at Lokoja. 230 m. above its mouth. It rises in Adamawa, and flows through a very fertile country, navigable for 700 m., thus affording a navigable for 700 m., thus affording a highway into the centre of Soudan. Explored by Dr. Baikie in 1854 and 1862, and Mr. Flegel, 1879-83.

Ben Venue, a mt., 2393 ft. high, on Loch Katrine, in the S.W. by W. of Perthshire, 9½ m. W. of Callander.

Benvenuto, or Tisio da Garofalo (1481-1559). It. painter, last representative of the Ferrara school, and follower of Banbael. In the church of

follower of Raphael. In the church of San Niccolo at Ferrara he painted in 1520 the 'Virgin Mary and Infant Jesus,' in the church of Santa Maria de' Servi the 'Nativity.' and in San Lorenzo the 'Adoration of the Magi.' His best work is a 'St. Sebastian,

Ben Voirlich, a mt., 3092 ft. high, in Dumbartonshire, Scotland, 12 m. E. by N. of Inverary.

Ben Wyvis, a mt. in Ross, Scotland, 8 m. N.W. of Dingwall. Alt. 3429 ft.

Benyowsky, Mauritius Augustus, Count de (1741-86), magnate of Poland and Hungary; Austrian soldier and adventurer; b. in Nittria in Hungary; 1756 fought in the Seven Years' War; 1761 joined his uncle, who was a magnate in Lithuania; on his father's death his uncle seized the property that should have fallen to B., and he armed his peasants to do himself right by force; he was quelled by the Austrian gov., but his wrongs were never righted. He came to Holland and England, and in 1767 went to Poland to help to resist the encroachments of the Russian Empress Catharine; he was captured and imprisoned at Cazan, but joined a Russian conspiracy against Catharine; it failed, and he escaped with one conspirator. At St. Petersburg he was captured again and banished to Kamchatka; escaped once more with eighty-five other exiles, took ship and went to Macao in China. On his arrival in France he had permission from the Fr. gov. to form an establishment at Madagascar, where he had called on his way back from China: he was repulsed by the natives. He returned once more on behalf of the Eng. gov., He returned and this time was killed by a Fr. army. See his Travels, trans. into Eng. 1790,

Benzaconine, an organic compound which forms the chief constituent of the alkaloids picraconitine and rapel-line. It is prepared by hydrolysis from aconitine, the active principle of

aconite or monkshood.

Benze Hehyde (C.F.CHO), a colourles li di i our of bitter almona. Il i i i naturally in bitter almonds, cherries, and peaches in the form of amygdalin (q.v.). It is also prepared from toluene, which is converted into benzyl chloride and then heated with lead nitrate. ALMONDS, OIL OF. Benzamide (C₆H₅CONH₂), an organic

compound formed by acting upon ammonia with benzoyl chloride. It crystallises in leaflets which melt at 130° C. and boil at 288° C.

Benzene (C.H.), a compound of carbon and hydrogen produced in the distillation of coal-tar. It was discertain oils

345 showed of coal-tar.

St. Roch, and St. Demetrius' in the in a tar-still, the products being National Gallery, London.

Benvenuto Cellini, see Cellini, fraction is taken up to 210° C, and fraction is taken up to 210° C. and fraction is taken up to 210° C. and fraction is taken up to 210° C. contains a large percentage of B. The distillate, known as 'light oil,' is again fractionated, producing separate distillates of 'first runnings,' heavy benzols,' and 'carbolic oil.' A further distillation of the benzols in a steamstill produces pure or nearly pure B. B. is a light, colourless liquid with a pleasant odour. It crystallises in rhombic form at 0°C., melts at 54°C., and boils at 80 4°. It is insoluble in water, but dissolves in alcohol, ether, acetic acid, and carbon disniphide. It readily dissolves gums and fatty substances, as well as phosphorus, suphur, and iodine. B. is interesting chemically as being the parent of the aromatic compounds. The atoms of carbon are represented in a graphic formula as being arranged in a closed ring, each atom being connected with an atom of hydrogen. The replacing of these atoms by other atoms or groups gives rise to a large number of derivatives, which have in general more strongly marked characteristics and are more stable than the aliphatic or fatty compounds. B. is used commercially as a solvent, and as a starting-point in the production of many valuable dyes. The name is often applied to benzol, which consists of B. Benzine is a distillate and toluene. from American petroleum, and is much used as a solvent. Benzoline is a name applied to a form of benzine; it is used as a solvent and as a fuel.

Benzil (C.H.CO.CO.C.H.), an organic solid, crystallising in trapezo-hedra. It is produced by treating benzoln with chlorine and nitric acid,

or by fusing it with an alkali. Benzine, a volatile liquid obtained from petroleum. The name has been applied, however, to different organic compounds. The hydrocarbon now known as benzene (C, H,) was originally known as B., and the name was afterwards and is still applied to the partially purified coal-tar oil which contains benzene as its principal con-stituent. The term B. is, however, most commonly applied to the lower boiling-point fractions in the distillation of petroleum, and has thus a kin-ship with petrol, petroleum spirit, motor spirit, benzoline, etc. It is valuable as a solvent, and is used for cleaning wearing apparel, etc.

Benzoene, a name formerly applied to the hydrocarbon now known as

toluene.

Benzoic Acid (C.H.COOH), an aromatic acid, occurring naturally in some resins, especially gum benzoin and in Peru and Tolu balsams. It may be obtained from benzoin by sub-To separate the various hydrocarbons | may be obtained from benzoin by sub-in coal-tar, the substance is distilled limation, from toluene by exidation

and from hippuric acid by hydrolysis. | pound found in Peru and Tolu bal metals. In medicine it is used as an antiseptic, expectorant, and diuretic. organic substance produced by the Moderate doses remain unchanged in action of chlorine on boiling toluence, the blood, but unite with glycocoll in By the addition of potassium carthe kidneys to form hippuric acid. It bonate, benzyl alcohol is produced, and heating with lead nitrate produces, and heating with lead nitrate produces, and heating with lead nitrate produces. is useful in mild chronic cystitis and in urethral affections.

Benzoin, a balsamic resin obtained from Styrax B. It is produced by cutting the bark of trees, and is appar- he has been professor of exthetics at entity the result of the wound, and is Budapest University. He has pub. not secreted by the plant under sev novels, praised for their realism ordinary conditions. There are dif- and character-drawing, and also a ferent varieties containing different History of Hungarian Literature, and proportions of the active ingredient, a History of Hungarian Prose. benzoic acid, while in some samples this is partly or wholly replaced by cinnamic acid. B. has a fragrant odour, and is much used for incense, perfumery, and pastilles. It has about A.D. 1000, and contains the Old long been a favourite medicament Eng. poem 'Judith.' It is now in long been a favourite medicament on account of its antiseptic property and its soothing influence in affections of the respiratory organs. The most popular form of the medicine is the

bons (also known as benzine, petro- der, but though mortally wounded leum spirit, or petrol). It is not a the creature escapes, leaving bloody definite chemical compound, and consists of the lighter fractions in the dis- The deserted hall, called Heorot, is tillation of petroleums or paraffins. It is used as solvent in industry, and in mother appears and carries off a medicine for heating cauteries and for Danish noble. B. undauntedly follows cleansing the skin in acne. It is also used in oil engines to provide the inflammable vapour which, mixed with air, produces the explosion or expansion of gases which actuates the pis-ton. It must be distinguished from benzol or benzene, which are products of coal-tar distillation, though like them, it has valuable solvent powers.

Benzoyl, a hypothetical organic radicle represented by the formula C₇H₄O. In 1832 Baron Liebig, in association with F. Wöhler, published a paper showing that throughout a series of compounds formed from benzaldehyde, or oil of bitter al-monds, a group which he called B. behaved as an element. A new era in chemical theory was thus inaugurated which has led to far-reaching results.

Benzyl Alcohol (C.H.CH.OH), or

Phenyl Carbinol, an organic com-

It crystallises in light feathery plates, sams and in storax. It may be pre-which melt at 1214°C. and boil at pared by reducing benzoyl chloride or 250°C. It is readily soluble in hot by shaking up caustic potash with water, alcohol, etc. When heated with benzaldehyde, when the product is lime, benzene is produced, and salts called benzeates are formed by combination with the oxides of many a pleasant odour, and boils at 206°C. metals. In medicine it is used as an Benzyl Chloride (C.H.CH.Cl.), an Benzyl Chloride (C.H.CH.Cl), an organic substance produced by the

benzaldehyde, or oil of bitteralmonds. Beöthy, Zoltan, Hungarian author, born at Komoru in 1848. Since 1882

Beowulf, an epic poem, and considered the most valuable example of Old Eng. and early Germanic literature. It consists of a MS. written the British Museum, where it is bound with other MSS. in the Cottonian collection. The poem relates the deeds of B., nephew of the king of the 'Geatas' (the people). Briefly, the story describes how B. sails to Denmark, accompanied by fourteen companions, to help his brother Hrothgar. compound tincture, or friar's balsam, which is used externally for sores, ulcers, etc., and internally for throat mark, accompanied by fourteen comtroubles. Inhaling the vapour produced by adding a small quantity of friar's balsam to hot water is very effective in cutting short catarrh and influenza.

The product of the tracks which lead to a distant lake. once more inhabited, but Grendel's her, and plunging into the water of the lake, kills her in a vault under the He finds Grendel's corpse waves. here, and securing the head, returns to Heorot, where he is welcomed with acclamation. The king of his native land rewards him with lands, and on his death B. is proclaimed king. Fifty years pass, and now B. himself is suffering from the incursions of a monster in the shape of a fiery dragon. The fight here is more terrible than that with Grendel and his mother, and B. is just able to kill the fire-breathing dragon, by the aid of a young man named Wiglaf. But B. is mortally injured, and with his dying breath ordains Wiglaf his successor. B.'s burial takes place amid universal lamentation, and his body is burned together with the treasure obtained from the abode of the dragon. Such

is the story, like all epics a mixture among whom were Hugo, of history and mythology. The epic and Saint-Beuve. In 183 was composed in a period when poems were recited rather than read; and though B. would be too long to de-claim at another. et the custom οf of favourite her demand ex-

pressed by the hearers, would cause its gradual enlargement.

Bequeath, Bequest, two words strictly applicable in Eng. law to the disposition of personal property by will, the word 'devise,' being the technical term to apply to disposition of real property. See WILL.

Berabra, Nubian people of Egypt.

chiefly found in the neighbourhood of the Nile from Assuan to Wadi Halfa. They are also found in Kordofan and Dar Fur. They are not, as some suppose, of old Egyptian line, for their facial angle shows that they originally came from negro stock. They are honest, intelligent, and quick to acquire new methods of agriculture, which is their chief employment.

In religion they are Mohammedans. Beræans, see BEREANS. Béranger, Pierre Jean de (1780-1857), a Fr. song-writer. He was born in Paris, and his father abandoned Pierre's mother only six months after the marriage. During his childhood B. was under the care of his grandfather, Champy, a tailor. At the age of nine he was transferred to the protection of an aunt, who kept an inn at Péronne. Her vigorous republican ideas were passed on to her nephew Pierre. He became a printer's ap-prentice for three years at the age of fourteen, subsequently acting as a clerk in the service of his father, who had acquired a fortune, and who very soon afterwards lost it. B. took up his abode at Paris after this, and devoted himself to the study of literature. At this time he lived in a garret, which forms the subject of one of his songs. Adversity, however, shattered some of the dreams he had hoped to realise, and he was forced to solicit help from Lucien Bonaparte. Three years later he was given a position as clerk in the Imperial University, through the influence of the poet Arnault. In 1815 he pub. his first col-lection of songs, and was immediately recognised as the foremost of his country's song-writers. His greatest triends were the artisans, and his enthusiasm and sympathy for them were profound. His popularity in oreased, and also his courage in airing revolutionary ideas, for in 1821 he was imprisoned in St. Pélagie. Later, undaunted, he again incurred punishment, and this time was incarcerated in La Force. Here he was visited by some of the greatest men of the day,

Dumas. In 1830 Chansons Nouvelles were published, and ten years later his life story. By over 200,000 votes he was elected to enter the Constituent Assembly. though reluctant y. He resigned shortly afterwards, and sought re-tirement till his death in July. The versatility of theme and light deli-cacy of his humour and pathos easily explain his powerful hold upon a public so warm as the working class of France, while his technique and literary quality endeared him no less to the literary scholars of his day. Berar, or Hyderabad, is a prov. of

dency and Mysore. It is watered by the Godaveri, the Taptee and Mahanuddy, and the Krishna, and has a fertile soil, producing large quantities of wheat and cotton. It was taken by the Moguls in the 17th century, after being ruled by independent sover-eigns, was afterwards devastated by the Mahrattas, and finally divided between the Peshwa and the Rajah of Nagpore. In 1861 B. was transferred to British dominion in exchange for some other dists., and to cancel a debt of two millions. The Nizam is the first native Indian chieftain. Pop. 13,000,000.

Berat, the cap. of Jannina, of S. Albania, Turkey. It is situated on the R. Ergene, a trib. of the Someni. Pop. (1900) 15,000. Products wine,

olive oil, fruit, and grain. Beraun, a tn. in Bohemia, Austria: pop. 9693 (1900). It has lime-kilns. textile manufs., sugar refineries, and

breweries.

Berber, a tn. and prov. in Anglo-Egyptian Soudau, near the junction of the Atbara and the Nile. The tn. was the starting-point of the old cara-

van route across the Nublan Desert to the Red Sea, at Suakin. Pop. 6000. Berbera, or Berberah, the prin. sea-port and tn. in British Somaliand. N.E. Africa, on a bay of the Gulf of Aden. It has a good harbour and is a great purket-blood for its all the a great market-place for inland tribes. During the period from October to May each year, a huge fair is held, attracting more than 30,000 people from all parts of the East. climate is good.

Berberideze, the name applied to a group of dicotyledonous plants of the cohort Ranales, which includes the Berberidacem and Lardizabalacem. The plants are either bushes or herbs, and are found in the cooler parts of the world. The juice usually stains yellow, and the bark or stem is bitter and used medicinally.

Berberis is a genus of Berberidacew

containing 100 species in S. America and mountainous dists. of the tropics. The most common species occurs as a shrub in Britain, and is known as

barberry (q.v.).

Berbers, the term applied to the different branches of the native 'Libyans' of N. Africa. These tribes have inhabited the region between the Mediterranean and the Sahara since the earliest times. The derivation of the name is yet undiscovered, though it may have come from scriptions of the 17th and 13th centuries B.C. speak of the Barabara and Beraberata tribes. They were called 'Lebu,' 'Mashuasha,' 'Tamahu,'
'Tehennu,' and 'Kahaka' by the
Egyptians. There are a bost of tribes called by this term to-day, the main sections being Zouaoua and Jebalia (in Tripoli and Tunisia), the Chauwia, Kabyles, and Beni-Mzab (in Algeria); the Shluh, Amazigh, and B. (in Morocco); and the Tuareg, Amos-hagh, Sorgu (in the Sahara). The word Africa has been traced by some scholars from a tribe called Avrigha, whose descendants, the Aouraghens, form one of the innumerable lesser groups. The actual origin of the race is still involved in obscurity, and it is to be noticed that, notwithstanding the alterations in feature, usually brought about in the process of time by foreign conquest at the hands of successive invaders, the type is still surprisingly like that of the Stone Age. The usual facial characteristics are dark hair and hazel eyes, while the complexion is distinctly of the white variety. The Arabs have been white variety. The Artis have been the prin. invaders, and yet the races are almost as distinct as if some barrier had existed between them. In character the B. is independent, sturdy, and self-reliant, honest, intelligent, and scrupulous; in all of which virtues he forms a contrast to the Artis Theory of the Resystands the Arab. The gov. of the Bs. extends over each state, which in most cases is the vil., and there is no attempt at centralisation. Yet the poorest of them has as large a share in the gov. as the richest. They are exceedingly warlike, and have never yet been thoroughly subdued. Their religion is Mohammedanism, though their zeal does not often lead to such a practical result as the observance of the ablutions. Indeed wild boars are eaten and fig wine is drunk. In spite of this evident laxity they have more reverence for their saints than the Arabs. the Arabs. B. women occupy an inferior position, and are procurable by purchase, and easily disposed of at will, yet they are protected by laws, and have a voice in their formation.

British Guiana. It is bounded on the E. by Dutch Guiana and R. Corentyn. Its area is 21,000 sq. m. In 1831 it was joined to Essequibo and Demerara under one gov., while formerly it formed a distinct prov. Its chief product is sugar, while rum, molasses, timber, cocoa, and tropical fruits are also features of its productions. Magnificent timber forests contain the mora and bullet trees. The R. Berbice is fed by the Canje and is navigable for 175 m. New Amsterdam is the prin, town of the division.

Berceo, (fl. Gonzalo ďе 1230). Spanish poet, considered the father of modern Spanish poetry, was one of the earliest poets in the vernacular. He follows the troubadour school of Langue d'Oc. His poems, which were very numerous, are chiefly sucred in theme and are composed in fourrhymed verse, called (quaderna via). His most noteworthy poems Milagros de Nuestra Señora, Vida de Santa Oria, Vida de Santo Domingo de Silos, and La Estoria de Sant Millan. The heauty of these poems is marred by the monotonous

Character of the verse.

Berceuse (Fr. berceau), literally a cradle song; a soft lulling melody with an accompaniment to imitate rocking. of Antwerp, Bel-

fine buildings

Berchem (or Berghem), Nicolaas (1624-83), a Dutch landscape painter, born at Haarlem. Studied first under his father (Pieter Claasz van Haarlem) and afterwards under Van Goyen and Weenix. He was very industrious, and produced an immense number of pictures, etchings, and drawings, which were much sought after. His work, particularly in his landscapes and etchings, is held in great esteem. Some of his best pictures are in the museum at Amsterdam. He died at Haarlem.

aariem. Berchet, Giovanni (1783-1851), It. set and natriot.. born at Milan. His poet and patriot, born at Milan. connection with politics as writer for the Conciliatore caused him to flee to England after the Revolution, and here most of his works were pub. The following may be mentioned: fughi di Parga, 1824: Ron fughi di Parga, 1824; Romanze; Fantasie, 1829. His collected works were pub. with a biography by F. Cusani (Milan, 1863).

Berchta (the original of the Eng. Bertha), a fairy in S. Ger. legend. She corresponds to Hulda (gracious, benign) in N. Ger. mythology. Originally a benevolent and beautiful spirit she subsequently came to be regarded as a witch, or a bugbear, to frighten children. At one time she was worshipped by pagans as a minor deity, Berbice, the eastern portion of as shown by the existence of numerous springs, etc., so named, in Salzburg

and other places.

Berchtesgaden, a tn. of Germany, on the boundary of Bavaria. It is placed at a height of 1700 ft. on the Untersherg, and it is famous for its rock-salt, whose mines were worked as far back as 1174. Its other indus-tries include toys, and horn and ivory articles. Pop. 10,046 (1900).

Berchtold, Leopold, Count (1758-1809), a Ger. medical writer, travelled through Europe, Asia, and Africa with a view to mitigating human suffering; pub. works against hasty interment and concerning sicknesses incident to seamen, and for curing them; pub. at Vienna, 1797, directions for the cure and prevention of the plague. wrote on many similar subjects, and was active in making known the

advantages of vaccination.

Berck-sur-Mer, a scaport and bathing resort in N. France, in the dept. of Pas-de-Calais, 22 m. S. of Boulogne.
Pop. (1906) 7638.

Bercy is an old com. of the Seine, situated on the r. b. of that river: it has been joined to Paris since 1859, and is the chief depôt for the wines, oil, vinegar, and wood for Paris; boat-building is carried on.

Berdiansk, a scaport on the northern shore of the Sea of Azov, in the Russian gov. of Taurida. There is a good harbour; grain, wool, and hides are exported, and agric. machinery is

manufactured. Pop. 30,000.

Berdichev, or Berdichef, a tn. of W. Russia in the gov. of Kiev, 116 m. S.W. of Kiev by rail. An important trade centre. Famous for its four annual fairs for the sale of leather, corn, wine, etc. Jews form the bulk

of the population.

Berdoe, Edward (b. 1836), English doctor and author, born in London; educated at Regent's Park College and London Hospital Medical College; has practised in Hackney since 1876. He is editor of the Zoophilist, and has written many medical works, but his hobby has been the study of Browning. He was on the committee of the

rimer,1905.

Berea: 1. A suburb and park of Castile, and queen of Richard I., Cour Durban (Port Natal), Natal. The suburb is picturesquely situated and is. of Cyprus in 1191, when he was commands the harbour. 2. A the crusadic wars. terial dist. in Basutoland, Maseru, and containing the r station of Berea.

Bereans, an almost extinct sect of Christians founded in Scotland in the 18th century by the Rev. John Barclay (1734-98), a native of Perthshire. They are so-called after the people of Berea, of whom it is said in Acts xvii. 11, that 'They received the word with all readiness of mind. The B. hold that the knowledge of the existence and character of God can be obtained from the Bible alone, not from nature or reason; that the Psalms of David refer to Christ alone; that assurance is of the essence of faith, and that lack of faith is an un-pardonable sin. The rest of their doctrine is practically identical with that of the Calvinists.

Beregh is the name of a dist, of Hungary, which numbers The chief tn. of the 200,000 inhab.

district is Beregszasz.

Beregonium, an error in the Ulm ed. of the Geography of Ptolemy, 1486. It should be Regonium, which was the name of a tn. of Novanta, and which now corresponds to the tn. of Innermessan, a fortified tn. on Loch Ryan, Scotland

Beregszasz, a tn. in Hungary in co. Bereg, about 100 m. S.E. of Kaschau;

pop. (1900) 9609.

Berendt, Gottlieb (b. 1836), German geologist, pub. in 1863 a geological chart of Brandenburg. He was appointed professor of geology at the university of Berlin, 1875. He did much valuable geological research work in N. Germany, and was one of the earliest expounders of the glacial theory. He was a violent opponent of the Darwinian theory. His two chief works are Geognostische Beschreibung der Umgegend Berlins, 1885, and Die Theorie Darwins und die Geologie, 1870. —enger or Beren-888-924, son of

iuli, and grand-ouis le Débonthrone in pre-

ference to Guido, Duke of Spoleto he maintained his position against all rivals until 923, when he was over-thrown by Rudolf, King of Burgundy. The following year he was assassinated.

Berengar II., King of Italy, 950-961, grandson of Berengar I. In 952 the Emperor Otto I. compelled B. to become a feudal dependent of Germany. In 961 B. was dethroned by the emperor, and eventually died, in 966, in a Bavarian prison.

Berengaria, daughter of Sanchez VI., King of Navarre, and Blanche of

him to Palestine, she Acre until Sept. 1192, n advance of the king. 267

and safely reached Sicily, and eventuter of Ptolemeus Philadelphus by ally Poitou in France. The king, less Arsinoe, the daughter of Lymsifortunate, was taken prisoner by the machus. She was the sister of Archduke of Austria. B. was reduced Ptolemeus III., Euergetes, and was to dire straits after Richard's death given in marriage, 252 B.C., by her in 1199 but received assistance from father to Antiochus II., King of Syria, the Templars. She died childless in called Theus, God, who divorced his

vigorous re-assertion of his heretical doctrines, and in 1079 he was again summoned to Rome. Again he 'ab-jured' his 'error,' and again he sub-sequently withdrew his 'abjuration,' Soon afterward. Soon afterwards, the opposition to his teachings proving too strong, he re-tired to an island near Tours, and died there in 1088.

Berenger (called Berenger of Tours) (998-1088), a celebrated Fr. divine, was born in Tours of a rich and distinguished family. After studying at Chartres under Fulbert, he returned to Tours in 1031, and was made teacher in the monastery of St. He continued to reside at Martin. Tours, though he was made archdeacon of Angers in 1040. B. agreed with the doctrine expressed by Scotus Frigena in the preceding century, and openly taught it. He denied transubstantiation, and saw nothing but a symbol in the sacrament of communion. He developed these views in a letter to Lanfranc, prior of Bec, and was accordingly condemned for them by the councils of Verceil in 1050, Tours in 1054, and Paris in 1059. He thereupon abjured his former views, and burnt his docu-ments expressing them, but later again went back to his heretical On being condemned by Rome, however, he repented, and finished his life as a rigorous ascetic.

Berenice, an antique scaport of Egypt, situated on the E. coast of the Red Sea. It stands at the head of a gulf, and its harbour has been almost blocked by a sand-bar. Among its

of Ptolemeus I., the founder of the dynasty of the Lagidæ in Egypt, and coralline of the order Gymnolæmata the mother of Ptolemeus II., called Philadelphus. B. had a son, Magus, by a former husband, who was after-words Eigen of Coraca. wards King of Cyrene. 2. A daugh- systems.

1230. She was famed for her beauty wife Laodice on the occasion. After the death of Philadelphus, Antiochus Berengarius of Tours, scholar and divorced B. and took back Laodice, Berengarius of Tours, scholar and divorced B. and took back Laodice, theologian, was b. at Tours about 998. He was a pupil of Fulbert de Chartres. B. to death, together with a son In 1040 he became archdeacon of Angers, and soon after commenced to attack the dogmas of transubstantiation and the real presence. He was summoned before the councils of Cours (1054) and Rome (1059), was condemned for heresy and forced to recant. His abjurations were soon. This B. is said to have made a vow of followed on each coercion by a divorced B. and took back Laodice, who poisoned her husband and put the poisoned her husband the sum to be death, together with a son in the size of the selection. To the sum of the selection of the selection. This B. is said to have made a vow of tellowed on each coercion by a divorced B. and took back Laodice, who poisoned her husband and put the poisoned her husband the sum of the poisoned her husband the push of the size of the said to death, together with a son in 1040 he became archdeacon of whom she had by Antiochus. To avenge his sister's death Ptolemæus to death Laodice, and overran the summoned for heresy and forced to represent the sum of the size of t recant. His abjurations were soon followed on each occasion by a her hair during her husband's wars in Asia. The hair was placed in the temple of Venus, from which it was stolen, but Conon of Samos declared that it had been taken up to the skies and placed among the seven stars in the lion's tail. Callimachus wrote a poem on the occasion, which is now only known from the beautiful translation by Catullus, De Coma Berenices. B. was put to death by her son Ptolemeus IV., Philopator, and his infraredus articles. his infamous minister Sosibus. Otherwise called Cleopatra, the only legitimate child of Ptolemeus VIII. (Soter II.); reigned six months, the last nineteen days of them in concert with her husband, Alexander II., who, according to Appian Porphyry, murdered her nineteen days after the marriage, 81 B.C. The portraits of Alexander II. and B. appear several times on the great wall of sandstone which encloses the temple of Edfu, and the portrait of B. is always the same. 5. A daughter of Ptolemeus IX., Auletes, who began to reign in Egypt, 81 B.C., sister of Cleopatra. During the absence of her father in Rome, B. was made regent, which office she held from c. 58-55 B.C. Gabinius, about the close of 55 B.C., Galinius, about the close of 55 B.C., came to Egypt with an army and restored Auletes, who put his daughter to death. Clinton's Fasti Hellenici. 6. A daughter of Herodes Agrippa I., grandson of Herod the Great. After the capture of Jerusalem she was taken to Rome, and was to have married Titus, son of the Emperor Vespasian, but on his father's death Titus unwillingly sent her away, as the match was not pleasing important ruins is a temple. It was away, as the match was not pleasing founded in 285 B.C. by Ptolemy II.

Berenice: 1. One of the four wives of Ptolemeus I., the founder of the dynasty of the Lorden in Equation 1.

Berenson, Bernhard (b. 1865), historian and critic, born at Vilna, Russia. His chief study is old It. painting. B. wielded great authority in Irish His chief study is old It. painting. His most notable works are: Painters of the Renaissance, 1894; Florentine Painters of the Renaissance, 1897; The Study and Criticism of Italian Art, 1901; and Lorenzo Lotto, 1903.

Beresford, Lord Charles William de la Poer (b. 1846), a British naval officer and parliamentarian, son of the fourth Marquis of Waterford, born in co. Waterford, Ireland. He was educated in private schools, and entered the navy as a cadet of the Britannia in 1859. He became a He became a lieutenant in 1868, a captain in 1882, and a rear-admiral in 1897. He was naval A.D.C. to the Prince of Wales (King Edward VII.) on his visit to India (1875-6), and to Queen Victoria India (1875-6), and to Queen Victoria (1896-7). He was in command of the Condor at the bombardment of Alexandria in 1882, when he particularly distinguished himself for bravery; he served in the Nile Expedition under Lord Wolseley, 1884-85; he was in command of the naval brigade at the battles of Abu Klea, and Metemmeh, and commanded the Safia (whose boiler was repaired under fire) in an expedition up the Nile to rescue Sir Charles repaired under fire) in an expedition up the Nile to rescue Sir Charles Wilson's column. He was elected M.P. for Waterford, 1874-80; Marylebone, 1885-9; York, 1897-1900; Woodwich, 1902. He was appointed a Lord Commissioner of the Admiralty, but resigned in two years on a question of the increase of the fleet. 1898 he visited China as a representative of the Associated British Chambers of Commerce. He was in command of the Mediterranean Flect, 1905-7, and of the Channel Flect, 1907-9. He retired in 1911, in which year he was created G.C.B. Since 1910 he has represented Portsmouth in Parliament, and is a vigorous Con-servative. He has written numerous articles on Egypt and on naval and imperial quest to the Times.

tions are Nelso

Break-up of China, 1899. Beresford, James (1764-1840), Eng. author, born at Upham, Hants.; educated at Charterhouse and Oxford. In 1812 he became rector of Kebworth Beauchamp, Leicestershire. His chief work, The Miscries of Human Life: or the Last Groans of Timothy Testy, etc., was praised by Scott, and he also pub. some translations and religious books.

Beresford, John (1738-1805), an Irish statesman, born in Dublin and graduated at Trinity College in 1757. He sat in parliament, representing Waterford, from 1760 till his death. He was made Privy Councillor, 1768:

affairs and was Pitt's chief adviser in his policy to that country. B. suggested the clauses in Orde's Bill, regarding the removal of the com-mercial restrictions of Ireland, but was successfully opposed by Grattan. Lord Fitzwilliam dismissed B. from office in 1795, on the ground that his influence in Ireland was displeasing to the Grattan party, and therefore a hindrance to the gov. Fitzwilliam was recalled on this account, and B. re-instated. B. played an important instated. part in bringing about the union of Ireland with England, and superintended the fiscal arrangements between the two countries. His second wife was Barbara Montgomery, one of the 'Graces' of Joshua Reynold's picture in the Royal Academy.

Beresford, Lord John George de la Poer (1773-1862), Primate of all Ire-land. He was educated at Eton and Oxford, and was ordained a priest in 1797. He became Dean of St. Macartin's, Clogher, 1799; Bishop of Cork and Ross, 1805; Archbishop of Armagh and Primate of all Ireland, 1822. In 1851 he was elected Chancellor of the Dublin University, having been vice-chancellor since 1829. He was a generous benefactor, and the cathedral of Armagh was restored through his liberality. He died at Auburn,

co. Down.

Beresford, Sir John Poo (1766-1844), British admiral, the natural son of Lord de la Poer, the first Marquis of Waterford. He entered the navy in 1782; in 1795, as acting captain of the frigate Hussar, he successfully engaged five Fr. store-ships in Hampton Roads; when in command of the Raison he captured a Spanish ship off the Bahamas, 1797. In 1803 he was appointed the command of the North Sea; he served under Lord Gambier ring the operations in Basque ands, 1809; acted as senior officer

the Poiliers off Brest, 1810; took part in the blockade of Texel, 1811: promoted to the rank of rear-admiral and created a baronet, 1814; created K.C.B., 1819, and an admiral, 1838. Between 1809 and 1835 he sat in parliament representing successively the constituencies Coleraine, Berwick,

Northallerton, and Chatham.
Beresford, William Carr. Viscount (1768-1854), a noted British general, the illegitimate son of the first Marquis of Waterford. He entered the army in 1785 and served with distinction at Toulon, in Egypt, the Cape, and Buenos Ayres. In Feb. 1809 he undertook the reorganisation of the Portuguese army and achieved

At Albuera he was in command, and he was also present at Badajoz, Salamanca, and other im-portant Peninsular battles. In 1814 he was made Baron, and in 1823 Viscount, B. He left Portugal in 1819, entered into Eng. politics, and became master-general of ordnance in Wellington's administration, 1828-30. In the latter year he went into retirement and lived in Kent until his death.

Beresina, ariv. in Russia. Itis a trib. of the Dnieper, and waters the gov. of Muisk. It is navigable for 250 m., though severe floods mar its value.

Beresna, or Berezna, a tn. of Russia, situated 30 m. E. of Tchernigoff, on a

trib. of the Desna; pop. 11,806. Berezin, Elias Nicolaievitch (1818-96), Russian Orientalist. He travelled through Asia Minor, Persia. Egypt, and Siberia for linguistical and ethological research. In 1855 he was appointed professor of Turkish at St. Petersburg University. He also held the appointment of director of the Oriental Numismatic Museum at St. Petersburg, and largely contributed Oriental subjects to the Russian Encyclopædia.

Berezov, a tn. of Asiatic Russia. It is situated in the gov. of Tobolsk, 700 m. to the N. of that city. From time to time fires have destroyed the

tn. Its trade is in furs, mammoth bones, and fish. Pop. 1073.

Berezovsk, a vil. in the gov. of Perm, E. Russia, situated in the Centre of Urals, near Ekaterinburg. important gold-mining dist. of same name, which has been worked since

1747.

Berg, Duchy of, a former duchy of Germany, situated on the r. b. of the Rhine, and having for its boundaries Cleves on the N., La Marck on the E., Westphalia on the S., and Cologne on the W. It became a duchy in 1380. when it was in the hands of the Jülich family. The Thirty Years' War was partly brought about by the question of its successor on the death of John William in 1609. In 1815 the Congress of Vienna made it over to Prussia, though formerly it had been in the possession of Louis, son of the King of Naples.

Berg, a suburb of Stuttgart, cap. of Würteinberg, S. Germany, on the Neckar. Has iron and woollen manufs., mineral springs, and many fine residences.

Berga, a tn. in the prov. of Catalonia, Spain, 52 m. N.N.W. of Barcelona: pop. 5000.

Bergaigne, Abel (1838-88), a Fr. at Vimy, Pas-de-Calais. He became and hides. Its manufs, are not exten-

great success He was rewarded by professor of Sanskrit at the Sorbonne, being created a K.B. and a peer of and won a high reputation as a scholar. He wrote voluminously, and issued several translations from the Sanskrit. The following of his works may be mentioned: La Religion Védique, 3 vols., Paris, de l'Ancien 1878-83: Chronologie Royaume Khmer, 1884; and Etudes sur le Henry, L'œuvre d'Abel Bergaigne.
Bergama (anct. Pergamos), a city

of Asia Minor about 40 m. N. of Smyrna. Beautifully situated in a

fertile valley. Pop. 6000.

Bergamo, a city and episcopal see of Lombardy, Italy. It is the cap. of the prov. of the same name, and is situated at the base of the Alps at the junction of the Brembo and Serio. There are two distinct parts to the tn., the old, Città Alta, on a hill, and Città Bassa below. There are a num-ber of silk and cotton factories and a large cattle market. 25,425, (dist.) 46,861. Pop. (tn.)

Bergamot, or Citrus Bergamia, is a variety of C. Aurantium, the orange

Bergamot, Essence of, is an essential oil obtained both by pressure and distillation from the rind of the ripe fruit of the B. (q.v.). The essence smells of oranges, and is used as a perfume.

Bergara, or Vergara, is a small tn. in the Spanish prov. of Guipûzcoa, one of the Basque provs. It is noted for cotton and linen stuffs. Pop. 9000.

Bergedorf, a tn., free ter. of Hamburg, Germany, on the R. Bille, 10 m. from Hamburg. The dist., known as die Vierlände, is very fertile, and is a centre of market gardens for Hamburg and export. Pop. (dist.) 25,000.

(tn.) 11,000.

Bergen, a city and seaport of Norway, situated on the W. coast, in lat. 60° 23′ N. It lies between Vaagen Harbour and the Puddefiord. vegetation is unusually prolific for that particular lat., though it is accounted for by the equally unusual rainfall (mean 74 in. annually). The appearance of the tn. is picturesque, amid the beauty of the surrounding scenery. The chief street of the tn. is named Strandgaden. Its principal buildings are the cathedral, a hospital, a diocesan college, an observaion.

nd Johan Dahl, and

the musical geniuses Ole Bull and Edward Grieg were all born here. Among shipowning centres B. ranks first, though its actual trade is less than that of Christiania. The prin. The prin. export is fish and fish products, while Sanskrit scholar and philologist, born the others include butter, copper ore, sive: among them are paper manuf., [pottery, ropes, and tobacco. The tn. was founded in 1070 by King Olaf Kyrre. Fire damaged it at different times, and the broad spaces (Almenninge) now met so frequently are arranged to arrest any possible out-

break. Pop. 72,129. Bergen-op-Zoom, a tn., prov. of N. Brabant, Holland, at the junction of the E. Scheldt and the Zoom. It has large tile and pottery works. and the oyster and anchovy fishery Sugar-beet is a new is important. In the 15th century its cloth trade and fisheries made it an important town. Fortified in 1576, it was unsuccessfully besieged by the Spaniards in 1588, 1605, and 1622. It was more strongly fortified by Coehorn, and was captured by the Fr. in 1745, and again in 1795. Sir Thomas Graham (Lord Lynedoch) failed in the assault on the tn., 1814. The fortifications were destroyed in the 19th century. Pop. 13.663.

Bergenroth, Gustav Adolf (1813-69), Ger. historian, born at Oletzko, Prussia; educated at Königsberg University; entered the diplomatic service, which he left after the 1848 revolution. He spent 1850-51 in revolution. He spent 1200-21 in America, and in 1857 settled down to historical study in England, making a special study of the Tudor period. Hischief.

State Pa; tions betv

vols.), was pun. during 1004-90.

Bergerac, a tn., Dordogne, France, on the Bordeaux-Cahors line. It is a busy centre of trade, especially in the wine of the dist., and there are tan-~ks, and dis-

n the right bridged to The ! ourb. as checked nturies by

its adherence to Calvinism, especially after the revocation of the Edict of Nantes. Pop. (tn.) 10,545, (com.) 15,625.

Bergerac, Savinien Cyrano de (1619-55), Fr. author of romances and dramas, son of the Scigneur de Mauvières et de B., served as an officer in the Guards during 1639 and 1640; his enormous nose, his adventures, including a fight with a hundred opponents, and the duels which persisted throughout his life, which persisted throughout in the are recorded by his friend Lebret; he then turned to writing, producing (1654) Le Pédant joné, a comedy which influenced Mollère, and the tragedy, Mort d'Agrippine, which the consecution of the transported of action. His His orthodox suspected of atheism.

regarded as the forcrunners of Swift's Gulliver's Travels, or as merely an echo of Rabelais' Pantagruel. He Pantagruci. died from an accident while in the service of the Duc d'Aparjon. Ed-mond Rostand founded his play, Cyrano de Bergerac, 1897, on the adventures of the real Cyrano; the central character being played by Coquelin aine. The collected works were pub. by P. L. Jacob, 1858, with Lebret's memoirs. Sec also P. A. Brun, 1894, and Garnet Smith in

Cornhill Magazine, July 1898.

Bergh, Johan Edvard (1828-80), a Swedish painter, born in Stockholm. and father of the modern school. He studied painting at the Rhineland Academy in Paris, and in Geneva, under Calame. His paintings are chiefly landscape, and are idealistic in character. He preferred vivid, lively colouring. In 1861 he was appointed professor in the Academy of Stockholm. His best picture is perhaps his 'View of Uri,' now in the

Berlin Academy. Berghaus, Heinrich (1797-1881), a Ger. geographer and cartographer, born at Cleves. He was a meinber of the Prussian survey of 1816, and was head of a geographical school vt Potsdam and professor of mathe-matics in Berlin. In addition to

many valuable e.g. Grundriss his chief work alischer Allas, by his nephev Both uncle an largely to the in various editions.

Berghem, Nicholas, see Berchem, Bergk, Thoodor (1812-81), a Ger. classical scholar, born at Leipzig: was professor of classical literature at Marburg, Freiburg, and Halle from 1842-68, when he retired to Bonn. His chief works are his ed. of the Gk. lyric poets (Poclæ Lurici Græci, 1843, new ed. 1900), of Anacreon, 1834, and a lyrical anthology. His History of Greek Literatures, begun in 1872, was completed by G. Heinrichs and E. Peppmuller. See Peppmuller's memoir in ed. of his minor writings, 1884, and Sandys. History of Classical Scholarship, iii., 1908.

Knoller, Mengs, Canova; obtained the prize at the Academy of Parma, 1784, with a picture of Samson de-livered to the Philistines by Dalllah. Returned to Germany, 1786, and painted many altar-pieces for churches in the neighbourhood of Passau; 1800 stirical scientific romances, L'His made director of the Academy at loires Comiques des états de la lune.

Prague, and painted sov. altar-pieces for churches there; died at Prague.

Bergman, Torbern Olof (1735-84), 1 Swedish chemist, born at Catharinberg, in W. Gothland; educated for church, but devoted his time to mathematics and physics; in 1767 appointed professor of chemistry at Upsala. His writings have been collected in six octavo vols. Opuscula Torberni Berg-

man Physica et Chemica.

Bergman

Bergmann, Ernest von (1836-1907), Ger. surgeon, born at Rügen, Livonia, Russia. He studied at the Dorpat, Vienna, and Berlin universities, and in 1866 was attached to Prussian troops in the hospital service through the Bohemian campaign and the Franco-Prussian War, and was appointed professor of surgery at Dor-pat, 1871-8. From 1878 to 1882 he was professor at Würzburg, and then occupied the chair of surgery in the university of Berlin. In 1887 attended the Crown Prince of Germany, afterwards Emperor Frederick III., who was attacked with cancer of the throat; this case gave rise to a heated controversy due to the dif-ferent diagnosis of his colleague in attendance, the Eng. specialist, Sir Morell Mackenzie. B. wrote numerous treatises, including Zur Lehre von der Fettembolic, 1863; Die Lehre von den Die von Hirn-

Bergmehl, or Mountain-flour, a geological deposit in the form of very fine greyish-white powder, also called fossil farina,' and 'diatomaceous or infusorial earth.' It is largely cominfusorial earth. posed of the indestructible siliceous frustules or cell-walls of diatoms. Beds of earth of considerable thickness that have accumulated in past geological ages are now being found on the bottom of some fresh-water lakes and on the sea-floor. B. has valuable abrasive properties. It is employed in manufacturing dynamite as an absorbent; and is used as insulating material for boilers and steam-pipe coverings. Deposits abound in Tertiary and Quaternary formations of many countries. It has been mined both in Eastern and Western U.S.A. In Lapland and Sweden in times of great scarcity it is sometimes eaten mixed with ground corn and birch-bark. The name is also given to a white powdery variety of calcite resembling cotton.

Bergschrund, a big crevasse at the base of a snow or ice slope. Bs. are usually too wide to be strided, and resort must be had to a snow-bridge.

posts of a similar kind in the provs.. he was appointed professor at the Ecole Normale Supérieure, 1897-1900, and since 1900 has been professor at the Collège de France. He is a member of the Institut and officier de l'Instruction Publique. One of Mons. B.'s most fruitful philosophical theses is, that much of the confusion in early metaphysics arises from the fact that, consciously or unconsciously, we have stated reality in terms of space and tried to eliminate This attempted elimination of time is, he asserts, characteristic only of knowledge dominated entirely by conceptions of utility. If we try to state the relation between knowledge and its objects in terms of time instead of space many antinomies. e.g. those of Idealism and Realism, will be resolved. Thus in his Time and Free Will be states that determinists and their opponents confuse duration with extensity, and that once this confusion is dispelled we may perhaps witness the disappearance of the objections raised against Free Will. Throughout his work, and particularly in what is perhaps his most important and suggestive book, Creative Evolu-tion, Mons. B. insists on the dis-tinction between the nature of our experience of time and our experience of space. Time is a process of change in which none of the parts are ex-ternal to one another, but interpenetrating, where the past is carried on into the present, where therefore there is no repetition, but a continual creation of what is new. Space, on the other hand, is that whose parts are external to one another; can be simultaneously apprehended, and in which recurrence of the same thing in the same position is possible. that shadowy giant of the ancient philosophers, Heraclitus, Mons. B. regards everything as in a state of flux, ceaseless change in which there is, strictly speaking, no repetition or recurrence. Being no recurrence there cannot well be any guiding rules of conduct to meet each new and unique contingency. For this reason Mons. B. has been called a pragmatist, and much of his work consists in insisting on the influence of practical considerations on thought. It is not without interest to record that Mons. Georges Sorel and other syndicalist leaders of the Fr. proletariat find, or profess to find, in Mons. B.'s writings much justification of their ideals and methods. Mons. B.'s lectures have Borgson, Henri Louis, Fr. philoso-pher, born 1859 in Paris, and educated London as well as Parisian audiences. at the Lycee Condorcet and the Ecole and numerous criticisms of his philo-Normale. He became professor of sophy have been written within the philosophy at the Lycée d'Angers, last few years. His chief publications 1881-3, and, after holding various are Essai sur les données immédiates

de la Conscience, 1889 (Eng. transla- flammation. Mortality varies greatly tion, 1910); Matière et mémoire, 1896 The disease has been known in the (Eng. translation, 1911): Le Rire. 1900 (Eng. translation, 1911); L'Evolution Créatrice, 1907 (Eng. translation, 1911). Consult Professor William James. A Pluralistic Universe, 1909; The Philosophy of Bengson, by A. D. Lindsay, 1911; W. H. Carr, Henri Bergson: the Philosophy of Change, 1912; E. Hermann, Eucken and Bergson, 1912; Hugh S. Elliot, Bergson, 1912; Hugh S. Elliot, Modern Science and the Illusions of Professor Bergson; and article by the Right Hon. A. J. Balfour in Hibbert Journal, 1911.

Bergues, a tn. of N. France, in the Nord dept., 5 m. S.S.E. of Dunkirk. Its industries include brewing, malting, brush-making, and oil preparing.

Pop. 4409.

Bergün, a picturesquely - situated vil. and health resort in the Swiss canton of the Grisons near the Albula Pass. It is about 20 m. by

road from Thusis.

Berg Wind, the name applied in the S. coast of Cape Colony to a rough, hot, dry northerly wind. This wind is frequent during the months of May and August Its duration is normally one day, but occasionally it blows steadily for two days.

Bergylt, or Berguylt (Norwegian bergaulta), European name for the rosefish, or Sebustes marinus, a fish of the family Scorpænidæ (with 15 dorsal spines and 31 vertebræ). It is found on both shores of the N. Atlantic, and is known by many names, amongst them being Norwegian haddock, redfish, hemdurgan, redperch, redsnapper. The grown redperch, redsnapper. The grown fish is of a nearly uniform orange-red colour. The same name is used in Scotland for the black goby.

Berhampur: 1. A dist., Bengal, Britis shidabad on the

Indian Mutiny bro old and abandoned town of Cossim-bazar is within the boundaries. Pop. 24,397. 2. A tn., Ganjam dist., Madras, British India. The chief industries

are silk-weaving and sugar-manu-facture. Pop. 25,729.

Beri-beri, a tropical disease, of which the main symptoms are those heart palpitations follow, with heart failure, collapse and death, or the dropsical condition affects the lungs with fatal effects. The symptoms
with fatal effects. The symptoms
Berkeley, a tn., Alameda co., Callfornia, U.S.A. It is a popular resiparticular nerves involved in the in-

Far E. from very early times, and it is prevalent in low-lying damp places on the coast and near rivers, places on the coast and near rives, chiefly in China, Japan, and Malay in Africa and W. Indies, and in Cuba, Panama, and S. America. It is liable to break out repearedly in the same buildings and in slaps, by which it has been brought to Europe and Austra-No specific cure is known. cause has been attributed to some fungoid parasite, possibly absorbed by eating mouldy rice. Epidemics of peripheral neuritis, such as that attributed to arsenic in the glucose used in beer, have close resemblance to B. See Sir P. Manson, Tropical Discases, and his article in Allbutt's System o Medicine, 1907.

Bering, see Behring. Bériot, Charles Auguste (1802-70). a Belgian violinist and composer, b. at Louvain; he married Malibran, the famous singer, in 1836; professor in the Conservatory of Music of Paris, 1843; and of Brussels, 1843-52. He wrote a complete manual for the violin, composed seven concertos, and numerous popular pieces. He had two noted pupils, Vieuxtemps and Léonard.

Beris is a genus of dipterous insect of the family Xylophagidae. species are small, metallic-coloured flies which frequent the leaves of plants, and the larvæ feed on putrescent wood. B. clavipes lays its eggs in the form of a little chain of single oval eggs glued together.

Berislav, or Borislav, a tn. in the gov. of Kherson, Russia, 40 m. E.N.E. of Kherson city. It manuis. candles, and exports corn and timber.

Berja, a tn., Almeria, Spain, near Lead is mined near; agric. include wine, oil, and esiss, and there are paper and

ton mills. Pop. 13,224.

Berkeley, a tn., Gloucestershire,
England; situated in the Vale of B., a England; State of the country, celebrated for its 'double Gloucester' cheese. The B. Ship Canal admits small vessels to Gloucester from the docks at Sharpness. The church is Early English and Decorated. B. docks at Sharpness. The churc Early English and Decorated. which the main symptoms are those to peripheral neuritis, beginning with castle, where Edward II. was murnumbness and stiffness in the legs, and face, and paralysis of muscles; in wet B. the puffiness becomes general and dropsical, in 'dry B.' the muscles atrophy, acute breathlessness and heart negligible follow with heart magnificatured. It was a become in the period of the first in Englishment of the first in English Early English and Decorated. B. Castle, where Edward II. was murdered, to the S.E., the residence of Lord FitzHardinge (see BERKELEY, manufactured. It was a borough in the 13th century, but the corporation was dissolved in 1885. Pop. 774.

distant across San Francisco Bay. It, in 1871, which gives the first working is the site of the university of California, estab. 1873, and of numerous denominational theological colleges and seminaries. Pop. 10,700. Berkeley, the name of an English

noble family, whose history centres round the tenure of the great castle at Berkeley, Gloucestershire. A clear descent can be traced to Robert Fitz-Harding, who died in 1170, and was a wealthy citizen of Bristol. Tradition traces his descent from a son of a king of Denmark who came over with the conqueror. In 1155 he obtained a grant from the king of the manor of Berkeley, and a marriage took place between his son Maurice and the older family, descended from the Domesday tenant. Various lords of Berkeley, usually named Thomas or Maurice, played a distinguished part in the military and political annals of the kingdom. On the death of the ninth Earl of Berkeley in 1810, an important and interesting law-suit took place. In 1796 he had married Mary Cole, by whom he had already several children; to legitimise these children he made a declaration of an earlier marriage: this entry tion of an earlier marriage; this entry of marriage in a parish register was declared by the House of Lords to have been a forgery. The eldest son, thus declared illegitimate, had been left the castle and estates by will, and now claimed a writ of summons as a baron 'by tenure of the castle of Berkeley,' a claim which was defeated, as it had been declared in 1669 that such baronies by tenure in 1669 that such baronies by tenure were not to be revived. He was, however, raised to the peerage as Earl Fitzhardinge; his brother succeeding him revived the claim and was made a baron with the title of was made a paron which still remains, together with the ownership of the castle and Berkeley estates. The Earldom of Berkeley remains in the legitimate branch of the family. There have been many branches of the family, such as the Lords Berkeley of Stratton (1658-1773), with which philosopher George Berkeley (q.v.) is said to have been connected. Berkeley, George (1685-1753), Irish

philosopher and bishop, b. near Dysert, near Kilkenny, Ireland, was the son of a relative of Lord Berkeley of Stratton, Irish viceroy, 1670-72; his mother belonged to the same family as General Wolfe. He entered 1700, Trinity College, Dublin. which he became fellow, 1707. Here the works of Descartes and Newton were read, while Locke's Essay, pub. 1690, was already influencing the study of philosophy. The early trend

out of his new principle in philosophy, that matter, substance, and cause have no meaning apart from the conscious spirit; that no object exists apart from mind. In 1709 he pub. A New Theory of Vision, followed by a fuller statement, 1710, Principles of Human Knowledge In 1711 appeared a Discourse on Passive Obedience, and in 1713 Swift introduced him to the court and the intellectual society of London, and a popular exposition of his new theories in the form of Dialogues between Hylas and Philonous was published. From 1714-20 he travelled in Europe as chaplain to Lord Peterborough and as tutor to the son of Bishop Ashe. On his return, the disastrous condition of society. due to the collapse of the South Sea Bubble, led to his Essay towards Preventing the Ruin of Great Britain, In 1722 he was made dean of Dromore, and in 1724 dean of Derry. He then embarked on a scheme for the founding a college in the Bermudas, to Ghristianise from there the American continent. Through Walpole he obtained a promised grant of £20,000, and in 1728 he went to Rhode Is., where he lived till 1731, returning when he realised the money promised would not be paid. In 1733 he pub. Alciphron, or the Minute Philosopher, a Platonic dialogue on the philosophy of religion, with criticism of the free-thinking of the age. He was made bishop of Cloyne, 1734. He pub. The Analyst, 1734, and Querist, 1735-7, the last a series of questions on sociology and economics. In 1744 was pub. his last work Siris, which nominally dealing with the use of tarwater as a specific in small-pox and other diseases, contains some of his profound metaphysical speculation. In 1752 he resigned his bishopric and moved to Oxford, where he died.

It is not easy to appraise at its true worth the philosophy of Bishop B., but there can be no question of its

value as a connecting link between Locke and Kant. B. is the direct successor to Locke, and much of his work consists of attempts to solve the problems that Locke had failed to. The central principle of B.'s philosophy, that the essence of all reality is its being perceived, or in other words, the impossibility of anything existing independently of perception, was, we know, suggested to B.'s mind by an early study of Locke. As for Kant, he himself has left it on record that he was awakened from his 'dog-matic slumber' by Hume's trenchant but not altogether accurate, attack on B. B.'s New Theory of Vision, Principles of Human Knowledge, and of his mind is shown by his valuable Principles of Human Knowledge, and Commonplace Book, 1705-6, first pub. the Dialogues between Hylas and Philonous (Everyman Library, 483), ated in lat. 51° 30′ S., and log although written before he was thirty, 57° 56′ W. contain, nevertheless, the main excontain, nevertheless, the main exposition of his philosophy. This main principle was, as we have seen, that nothing existed apart from perception, a principle which B. declared to Edinburgh, where he pub. a Botanical be intuitively obvious and manifest Lexicon explaining terms used by common sense. But the soi-disant Linneus and other botanical writers: men of common sense among his con- wrote many books on medicine which

at best, as a subtle me paradox, at worst, as an sophistry. He was charged with attempting to prove the non-existence of matter, and that everything in the universe was merely ideal. B. protested against this assumption, asserting that everything that is seen, felt, heard, or in any way perceived, is a real being, i.e. exists, whilst, on the contrary, a thing which is not per-ceived cannot be known, and, not being known, cannot exist. The only intelligible cause of all phenomena is Neither pain nor pleasure a mind. exist apart from their being felt. In a famous passage (Principles, sec. 6), B. puts his whole teaching into a nutshell: 'Some truths there are so near and obvious that a man need only open his eyes to see them. Such I take this important one to be, viz. that all the choir of heaven and furniture of the earth, in a word, all those bodies which compose the mighty frame of the world, have not any subsistence without a mind—that their being is to be perceived or known.' But how, asked Hume, can we know that mind? Is it too an idea? ' To this B. responds that we have no idea of the self but only a notion of it. B., perhaps wisely, never developed this doctrine of notions, for had he done so, and to the extent that he did so, he would have undermined his central doctrine of idealism. Standard ed. of B.'s complete works, A. Campbell Fraser, 1871, new and revised ed., 1901, with Life, Letters,

Northamptonshire. He was educated at Rugby and Cambridge. In 1886 he became rector of Sibbertoft. his botanical researches he specialised in fungi. He was one of the earliest investigators on the potato murrain, on grape mildew, and on diseases of tomatoes, hops, cabbage, onions, tomatoes, etc. His chief works are Introduction

(1730-c.1791), orn at Leds. Served in

men of common sense among his con-temporaries—including Dr. Johnson were popular in their day, also a tria (Lives of the and Irish Authors).

---- some or eat with the Americans, and on his return was pensioned. His last publication was Letters on Education, 1791.

Berkhamstead (Great Berkhamstead), a tn., Hertfordshire, England, 28 m. from London on L. & N.W.R. It is on the Bulborne R., and near the Grand Junction Canal. Straw-plaiting is the chief industry. portant grammar school dates from 1541, and there is a large church, St. Peter's, of many styles and dates. chiefly Perpendicular. There are remains of the once important castle. Pop. 5140.

Pop. 5140.

Berkovitza, a tn., W. Bulgaria, on the Ogost, a trib. of the Danube. It lies 40 m. N.W. of Sofia. Pop. 5500.

Berkshire (A.S. Berroc-scir, from the 'wood of Berroc where the boxtree grows'), a southern midland co. of England, lying between Oxford and Bucks, N.; Hampshire, S.; Surroy, E.; and Wiltshire, W. The area is 462,208 ac. Pop. 256,509.

There are three co. parliamentary

There are three co. parliamentary divs., Abingdon (N. div.), Newbury (S.), and Wokingham (E.). Reading, the co. tn. returns one borough member. The Thames forms the natural northern boundary, on which are situated the old tos. of Abingdon, wallingford, Maidenhead (now entirely modern), Reading (the only large industrial centre), and Windsor, In the N.W. is the Vale of the White Horse, so called from the rude figure of a horse, 374 ft. long, cut out of the chalk on White Horse Hill (856 ft.). It is probably of far greater antiquity than Alfred's Danish victory it is said to commemorate. Through the rich pastoral vale in which lies Wantage runs the Ock. S. and E. are the

to Cryptogamic Botany, 1857, and Outlines of British Fungology, 1860.

Berkeley Sound, an opening on the Stretching into Surrey, are the sandy N.E. coast of E. Falkland Is., situ-

are Ascot and Wokingham, near great banks exercise increasing inter-which are the Royal Military College national influence: and its stock at Sandhurst and Wellington College. The co., except for Reading, is chiefly agricultural, sheep-farming on the chalk Berkshire downs and dairying being of great importance. Berkshire breed of pigs is famous. See E. Ashmole, Antiquities of Berkshire; Cooper King, History of Berkshire; Vincent, Highways and Byways in Berkshire: Victoria County History.

Berlad, the cap. tn. of Tutova, Roumania, on the railway from Jassy to Pop. 24,484. It has an im-Galatz. portant annual horse-fair, manufs. soap and candles, and is an agricultural centre for wheat and other

products.

Berlengas, a group of small is. in the Atlantic, situated to the W. of Estremadura in Portugal. Berlichingen, Götz von (16th cen-tury), a Ger. knight of Swabja, the subject of Goethe's poem bearing his name (trans. by Sir Walter Scott). Went to war with his neighbours, and In 1513 was put under the ban of the empire for attacking Nürnberg; besieged by Maximilian the Emperor, and died in defence of his castle.

Berlin, the cap. of the kingdom of Prussia, the seat of the Royal and Imperial Palaces, of the Federal Counnperial Par-

he Prussian id of all the gov. offices

of the Ger. empire, with the exception of the Supreme Court of Justice (Reichsyerich!), which is at Leipzig. In commerce, trade, and industry it is one of the most important siting of is one of the most important cities of Europe, and in population ranks third after London and Paris. It is the station of the Guard Army Corps and of the Third Corps. It lies on both sides of the Spree, and by the Spandau and Tetlow canals to the Havel it is linked with the systems of the Oder and the Elbe. It is 84 m. from Stettin and 180 m. from Hamburg, and is the centre of the great Prussian state railway system.

In recent years there has been a remarkable expansion of the suburban dists.: residential sites have sprung up in the pine woods and by the lakes of the Havel to the N.W., and Span-dau, Charlottenburg, and Potsdam may almost be regarded as suburbs. In its industries B. is almost as varied as London, but machinery, especially locomotives and electrical, woollens, dyeing, furniture and metal work are

exchange, though hampered by gov. restrictions, does an enormous amount of business. The famous Friedrich Wilhelm University, founded in 1810, now the largest in numbers in Germany, the splendid technical institu-tion at Charlottenburg, and its numer-ous schools of all ranks make B. one of the greatest intellectual and educational centres of the world. As the seat of the Imperial Court, and of the Imperial Parliament and administration, it is also the social centre of the empire, and its modern wealth and luxury have made it a growing rival to Paris as a city of pleasure. Since 1878 the city has been practically rebuilt; the sudden growth of population has resulted in much overcrowding and crushingly high rentals. crowding and crushingly high rentals. Once deplorable, the sanitation, water supply, and public hygiene are now of the highest standard, and Ger. scientific thoroughness has made it the most highly organised and best administered city in the world. Its gov. is partly municipal, including drainage, lighting, etc., water supply, schools, poor law, and bospitals; the city council consists of hospitals; the city council consists of paid officials (15) and unpaid (17), the common council (144) is elected, presided over by an Oberbürgermeister and a Bürgermeister. The police authority extends over building, markets, crime, and trade. B. sends six members to the Reichstag and nine members to the Prussian Landlag.

B. is the junction of twelve main railway lines. The city itself is served by an Outer Circle (Ringbahn) and by the Stadtbahn, running E. and W. through the city. There are electric tram lines, an overhead electric railway, and a shallow underground

railway.

The principal streets are Unter den Linden, leading from the Royal Palace in the Schlossplatz W. to the Brandenburg Gate (built 1789, a copy of the Propylea at Athens); S. lie the banking street, Behren Strasse, and the Wilhelm Strasse, the official quarter, where is the imperial chancellor's palace. Fine shops and restaurants line the Friedrich Strasse; Viktoria Strasse is one of the many thoroughfares of the fashionable dist., S.W.; König Strasse and Kaiser Wilhelm Strasse are the business streets of the city proper. Outside the Brandenburg Gate lies the Tiergarten, a beautiful park crossed by the Siegesdycing, furniture and metal work are Allee (1901), with its marble statues the chief. It is beginning to rival Leipzig in book production, and its present emperor. The Tempelhofn breweries are large. Besides being the centre of the great trade in corn and centre of the great trade in corn and other cereals of Eastern Europe, its Royal Palace, standing in the Schloss-

platz, is one of the few old buildings! in B., dating from the 16th century; it contains over 600 rooms, including the great Weisse-Saal and the halls of the Black and Red Eagle orders, etc. Other palaces are those of the Emperor William I. and of Frederick III. The Imperial Parliament House, N. of the Tiergarten, was designed by P. Wallot. The only old churches are the Marien-kirche and Nikolai-kirche. The new cathedral, by J. Raschdorff, was begun in 1893 The most striking bridge is the Schloss-brücke, by F. Schinkel, with

The Opera and the subsidised including the Lessing and Deutsches, where most of the modern plays are produced. No city has so many statues and monuments to the national heroes, kingly or military, or to those famed in literature, science, and art. The Royal Library, once in the palace, is now in a new building, built in 1909 on Unter den Linden it contains nearly 5,000,000 printed books. The University Library is housed in the same building. There is a large public library and twentyeight municipal libraries. The Royal Museum, in the Lustgarten, N. of the Schlossplatz, is divided into the Old and the New Museums, containing the treasure of classical and medicival sculpture, the Egyptian collection, etc. The National Gallery contains the modern Ger. paintings. In the Kaiser Friedrich Museum (1904) is housed collection

bronzes, etc. 2,070,695, but if greater B. be

included, over 3,000,000.

History.—The nucleus of the town were the two small places of Kölln and B., on the arms of the Spree. Here Frederick II. (the Iron) built a castle, and John (Cicero) made it a electors. court o Thirty It suffer till the Years time of the Great Elector and his successor that the towns grew and were consolidated as one under its present name. The end of the Napoleonic wars saw a great rebuilding, inspired by F. Schinkel, but its great rise and

the enormous expansion of Ger. trade and commerce.

formation of the Ger. empire and the

consequent centralisation in B. and

Toronto. It has large furniture. leather, and other manufactories.

Berlin. Congress and Treaty of (June 1878), a convention of the representatives of the chief European powers called by Prince Bismark. The object of the treaty was the reconstruction of the Russo-Turkish treaty of San Stefano (1878). The congress met under the presidency of Prince Bismarck at B. Great Britain was represented by Lord Becomes field, Lord Salisbury, and Lord Odo Russell. By the treaty Roumania, Servia, and Montenegro were re-cognised as independent states. The boundaries of Bulgaria were enlarged. and it became an autonomous Turkish tributary state under an elected Roumelia also became selfprince. governing, under a Christian minister in chief, but was still held under the power of the Sultan. The boundaries of Greece were also enlarged. Bosnia and Herzegovina were transferred to the control of Austria. Roumania obtained the Dobrudia, and in return ceded to Russia the Bessarabian ter. she took from Russia at the treaty of Paris. Ardahan, Kars, and Batum were ceded to Russia. The treaty of B. consisted in all of sixty-four articles. Berlin Spirit, a potable spirit dis-

tilled from comparatively inexpensive material, such as potatoes and It contains a large proporbeetroot. tion of deleterious by-products, and is used for adulterating brandy and

Between the additional stands and and fortifying wines of poor quality.

Berlioz, Hector (1803-69), Fr. musical composer, born near Grenoble, the son of a doctor, was trained for that profession but broke with his family, and after many difficulties entered the Conservatoire. Hegained the Prix de Rome in 1830 with a cantata. Sardanavalus. His marriage (1833) with the Shakespearian Irish actress. Harriet Smithson, was unhappy, and they separated in 1840. During this period he wrote the dramatic symphonies, Episode de la vie d'un Artiste; Harold en Italic; Symphonic Func-bre et Triomphale, which contains a magnificent march for a military band; and Roméo et Juliette. From 1838-64 he was musical critic for the Journal des Débats. His opera Benits present appearance dates from the venuto Cellini was refused a hearing in Paris, 1837. In 1846 he produced his greatest work, the symphonic cantata La Damnation de Faust. His sacred works include the reand commerce.

Berlin, a tn., Coos co., New Hampshire, U.S.A.; pop. 11,982. The falls of the Androscoggin riv. provide the power for the large pulp, paper, fibre, and saw mills.

Berlin, a tn., Waterloo co., Ontario, Canada; pop. 9747. It is on the Grand Trunk Railway, 58 m. W. of

his wonderful and original mastery of orchestration, in which his fervid and full romantic imagination found His Trailé d'instrumentascope. tion, 1844, has been ed. with additions by Richard Strauss, 1906. His Memoirs and Letters were pub. in 1870 and 1882; see selections, Eng. translation, in Dent's Everyman Library. Sce also Julien's Life, 1888; Filson Young, Muster Singers, 1908; Hadow, Studies in Modern Music, first series, 1908; new ed. of complete works, Desithers and Mister. Breitkopf and Härtel.

Berme (Ger. berme, the edge of a field) is a technical term of fortification, both temporary and permanent. In the former kind of fortification it is the name given to an earthen mass which separates the parapet from the ditch, and whose function is to uphold the weight of the parapet in order to prevent it from causing the earth of the scarp to fall in. In permanent fortification the B. is a block of freestone which crowns the scarp, and projecting slightly over the ditch, serves substantially the same function as the temporary B. When public works are in course of construction, the narrow passage between the canal or ditch, and the earth which is excavated therefrom, is called a berme.

Bermejo, Rio, a riv. of Argentine Republic, rising on Bolivian frontier and flowing S.E. into the R. Parana. Much of its course is navigable by shallow-draught vessels. Total length

over 1000 m.

Bermeo, scaport of Vizcaya, Spain, on Bay of Biscay, 14 m. N.E. Bilbao.

Pop. 8400.

Bermondsey, a metropolitan bor. of the S.E. dist. of London, on the S. side of the Thames. Rotherhithe and part of B. form the B. div. of the parl. bor. of Southwark. The prin. industry, long established, is that of leather, but the Surrey Docks and riv. wharves employ a large amount! of labour. Nothing now remains of the Clunial abbey, 1399. Pop. 130,760.

Bermudas, a group of small is. in Bermudas, a group of small 18. in the W. Atlantic Ocean, 32° 15′ N. and 64° 51′ W., 580 m. off Cape Hatteras, the nearest point on the N. American coast. They are named after a Spaniard, Juan Bermudes, shipwrecked here in 1527. Sir George Somers was also wrecked in 1609, and they were finally settled in 1612, since higher up.

received with enthusiasm by the northern limit of the coral builders. new school, as he was later in Vienna and St. Petersburg. He died in but fifteen are small, uninhabited Paris. B. was one of the principal exponents of modern 'programmic' N.E. to S.W. The total area is 20 sq. music, but his fame will rest chiefly on m. Great Bermuda, the Main Is., 14 m. Great Bermuda, the Main 18., 14 m. long, contains the cap., Hamilton (pop. 2627); the only other tn. is St. George (pop. 1000; on that is., which, with Paget, Smith, and other is., encircles Carth Harbour, N.E. of the Main 18. At St. George is the great floating dock, 545 ft. by 100 ft., towed out in 1902 to replace the earlier one The i-lets of Ireland, where of 1869. is the naval station, Somerset, etc., enclose the Great Sound at S.W. of Main Is. The temperate climate, Main Is. The temperate clin 87-49°, makes the B. a pop winter resort for Americans, B. a popular there is considerable export trade in early vegetables and spring flowers to the United States. On account of the strategic position of the group there is a military garrison and a naval dockyard and station. pop., excluding army and navy, is 19,000, 6691 being white. The is. are a British crown colony, administered by the governor and com-mander-in-chief, an Executive Coun-cil (6), Legislative Council (9), both appointed by the crown, and House of Assembly (36), elected by the nine parishes, four members each. The B. are included in the diocese of Newfoundland. The revenue amounts to £78,500, expenditure £68,000: exports £130,000, imports £500,000. See Heilprin, Bermuda Islands, 1889; Stark, Bermuda Guide, 1898; Cole, Bermuda, with bibliography, 1907.

Bermudez, a state in Venezuela, S. America, with an area of about 32,244 sq. m. It extends from the Caribbean Sea to the Orinoco, and to the Punta de Paria and the delta of the Orinoco.

Barcelona is the capital.

Bern, or Berne, the most populous and, with the exception of Grisons, the most extensive canton of Switzerland, has an area of 2650 sq. m. fertile valleys of the Aar and the Emmen divide the mountainous alpine region in the S. from the Jura Mts. in the N. Among the peaks of the Oberland are the Jungfrau, the Shreckhorn, the Erger, etc.; among the lakes of the canton are those of Thun, Neuchatel, and Bienne. prin. riv. is the Aar. The northern part of the canton is hilly; it has a fertile soil which produces corn, wine, and fruits. The south-eastern part, the Oberland, produces fruits in its lower valleys, and excellent pasturage higher up. Cows and horses are reared, the horses of Emmenthal when they have belonged to the reared, the horses of Emmenthal British empire. Geologically they especially being noted; the lakes are formed of accilan limestone de abound in salmon and trout. Many posits and coral reefs, being the quarries of sandstone, granite, and

marble are worked, and iron mines, whilst a little gold is also found. The manufs. of the canton, which are not extensive, comprise linen and woollen goods, leather, wood articles, and watches. The canton, which is made up entirely of lands acquired by the city B. at various times, has a pop. of 600,000.

B., the cap. of the canton, and political cap. of the Swiss confederation, is situated on a high sandstone promontory, surrounded on three sides by the R. Aar; it is 68 m. S.S.W. of Basel. It is the finest town in Switzerland, and one of the best-built towns in Europe. There is a magnificent Gothic cathedral, dating from the 15th century; a university, a Federal Council Hall, a museum, public library, etc. B. has not many manufs., chiefly dress fabrics and hats; it has however a very considerable trade with the dist. B. was founded in 1191, and became a free imperial city in 1218, and gradually attained a state of independence. Between 1288 and 1339 it successfully resisted attacks by Rudolph of Hapsburg, Albert his son, and Louis of Bavaria. In 1405 much of the city was destroyed by fire, but was afterwards rebuilt. In 1528 B. embraced the cause of the Reformation, and in the ensuing war with the Duke of Savoy added the Pays de Vaud to its From then till 1798 B. dominions. continued to prosper; in the latter year it opened its gates to the Fr. troops, and lost about half its possessions. The origin of the name of the town is said to be from old Swabian 'bern,' meaning a bear, and certainly a bear is represented on the first known tn. seal, of the date 1224. Ever since 1513 bears have been kept in B. at the public expense, and the bear-pit is still one of the sights of the town.

Bern Convention, see COPYRIGHT. Bernadotte, see CHARLES XIV. OF

SWEDEN.

Bernaida, a tn in the prov. of Potenza, Italy. It is about 35 m. S.W. of Taranto. Pop. 7000.

Bernard (fl. 865), a traveller in Palestine, called 'Sapiens,' who has been confused with a Scottish monk of the same page. of the same name. He set out from Rome, between 863 and 867, to Palestine, and on his return went the monastery of Mont St. Michel, in Brittany. To him has been attributed a work, De Ipsa Urbe Hierusalem et

Bernard, Claude (1813-78), a Fr. physiologist, born near Villefranche, began the study of medicine in 1831 and worked with the great Majendie at the Collège de France, becoming deputy professor in 1847, and suc-ceeding him the chair, 1855. His laboratory work and his experiments on animals rank him among the greatest physiologists of his time: his prin, researches and discoveries were in the digestive function of the pancreas, the sugar-making (glycogenic) secretion of the liver, and, perhaps his most epoch-making, the discovery of the vaso-motor system. His study of the action of poisonous drugs, chiefly curare, is also of high importance. He pub. Introduction d la Médicine Experimentale, 1885; Physiologie générale, 1872; but his work is best judged by the 17 vols. of his loctures (Lecons); see his Life

by Sir M. Foster, 1899. Bernard, Edward (1638-97), oriental scholar and mathematician, born at Toweester, Northamptonshire; 1655 elected scholar of St. John's College, Oxford; studied Hebrew, Syriac, Arabic, and Coptic; 1669 Christopher Wren, appointed architect to the king, appointed B. his deputy to the Savillan chair of astronomy. B. supervised the reprinting of the old mathematicians: he was more versed in the antiquarian learning connected with astronomy than with astronomy itself.

He died at Oxford.

Bernard, Mountague (1820-82), an eminent Eng. lawyer, b. at Tibberton Court, Gloucestershire. He studied at Trinity College, Oxford, of which he became a Vinerian scholar and fellow; he was called to the bar at Lincoln's Inn, 1846. He was influ-enced by the High Church movement, and became one of the founders of The Guardian, 1846. He was appointed the first professor of international law at Oxford, 1859-1874; and was elected a member of the commission on naturalisation and allegiance, 1868. In 1871 he went to America, and was one of the high commissioners who signed the Treaty of Washington, and on his return was made a privy councillor. He became a member of the University of Oxford Commission, and joined the Institut de Droit International at its foundation in 1873. He wrote voluminously on legal and diplomatic questions.

Bernard, William Bayle (1807-75), Bernard, William Bayle (1807-75), a work, De Ipsa Urbe Hierusalem et emultic adjacentibus Locis, and also a short tract, of which a manuscript exists at Oxford and another in the carby Travels in Palestine (Bohn's Anti-quarian Library, 1847), and Mabillon, in Migne, Patrologiæ, 1857-66. The Boarding School, 1841; and The

Round of Wrong, 1846.

Bernard of Morlaix, a Fr. monk of the 12th century, who belonged to the Benedictine order. He was the author of De Contemptu Mundi, a poem, which was published at Paris in 1843. It was complete in three vols., each containing 1000 verses, and has been widely read in a translation by Neale.

Bernard, St., the name of two passes across the Alps. The Great St. Bernard (8111 ft. high, 53 m. long) St. Bernard (8111 ft. high, 53 m. long) leads from Martigny, in Valais, Switzerland, to Aosta in Italy, across the Pennine Alps. The Little St. Bernard (7179 ft. high, 39 m. long), from the Isere valley, Savoy, France, to Aosta across the Graian Alps. The first pass, Alpis Poenina, seems to have been opened in 57 n.c. by Servius Galba for Julius Cæsar, but the road, of which there are slight remains, was not made till much later. remains, was not made till much later. to was in existence by A.D. 69. At the top of the pass was a temple to Jupiter. The famous hospice was founded by St. Bernard of Meuthon (died c. 1081) and has been served by the total of the control o Austin Canons since the end of the 12th century. The monks' service in saving life, with the aid of their dogs, has become historical. (For the St. Bernard breed of dog, see Dog). Napoleon and his army crossed the Great St. Bernard in 1800. The construction of a carriage-road was not finished till 1905. The Little St. Bernard, known to the Romans as Alpis Graia, was the chief pass till the opening of the pass at Mont Genèvre, Alpis Cottia, 75 B.C., and the road in A.D. 3; traces of the Roman road still remain. Hannibal's crossing the Alps by this pass is still disputed. has become historical. (For the St. Alps by this pass is still disputed. The hospice was also founded by St. Bernard. Bernard, St., of Clairvaux (1090-

mother was of a noble Burgundan family. He joined the newly founded monastery of Citeaux, and in 1115 founded the daughter house of Clairvaux, of which he was the first abbot. His saintly and ascetic life, his marvellous preaching and his reforming zeal made him the most influential churchman of his time, and the abbor the most important of the abbey the most important of

cange, 1837; His Last Legs, 1839; Innocent II. in the papacy as against the anti-pope Anactetus, and thus ended the schism which threatened the church. The elevation of his pupil, Eugenius III., to the papacy in 1145 made him almost a second pope. He presided at the condemnation of Abelard at Sens, and of Gilbert of Poitiers at Reims, and by his preaching checked the spreading heresies in Languedoc. As preacher of the second crusade in 1146 he won Louis VII. of France and Conrad of Germany to take the cross. The disastrous ending shook his power, and his failing health and the call of this order prevented his undertaking the third crusade. He died at Clairvaux, 1153, and was canonised by Alexander III., 1173. St. B. is one of the great figures of mediæval Christendom; apart from his political influence, the magnetic power of his preaching, and the example of his ascetic life, he stands out as the type of the practical mystic as opposed to the subtleties of scholastic theology. voluminous writings include letters, sermons, and dogmatic and mystical treatises; some of his hymns are still used in Protestant churches. Complete works first pub. 1508; ed. by Mabillon, 1667; Eng. trans. Eales, 1889-95; see also J. C. Morison, 1863, S. J. Eales, 1890, E. Vacaudard, 1895, R. S. Stores, 1893, and D'Haus-

Bernard-Beere, Mrs. Fanny Mary (b. 1859), Eng. actress, b. at Norwich, the daughter of Mr. Wilby Whitehead; prepared for the stage by Hermann Vezin; first appeared at the mann vezin; first appeared at the Opéra Comique. Married (1) Capt. E. C. Deering, (2) Bernard-Beere, (3) A. C. S. Olivier. In 1877 she joined the St. James's company, London, taking the parts of Julia in *The Rivals*, Lady Sneerwell in *The School for Scandal*, Emilia in *Othello*, and Grace Harkway in London Assurance In 1870 she appeared at the Olympic as Gretchen in Gibert's Faust, in 1880 at the Adelphi in The Green Bushes, and at the same theatre the next year in Michael Stroooff, and in 1881 at the Court in Mimi and Adrienne Lecourreur. In 1882, at the Globe, she played in Far from the Madding Crowd, Jane Eyre, and The Promise of May, and was engaged in 1883 by the Bancrofts for Sardou's Fédora, in which she scored a great success. In 1887 she became manager at the the above the most important of 1887 she became manager at the Cistercian monasteries, from which of Oréra Comique, and produced As in during his life sprang some ninety other houses. In 1127 his great intuence deserved the success of the Criterion in Still Waters Run Deep, newly formed order of Knight's and at the Garrick in La Tosca in Templars whose rule he inspired if he did not actually draft. From 1130-8 Australia during 1892-3. In 1897 she he played the chief partin establishing

in Sheep's Clothing, at Wyndham's in The End of a Story in 1902, and at

the Coliscum in The Spy in 1905, Bernardin de Saint-Pierre (1737-1814), Fr. author and engineer, born at Havre; educated at Caen; became an engineer and entered the army, but was dismissed and travelled about over Europe till 1765, when he settled in Paris. During 1768-71 he filled a gov. post at He de France. In 1792 he became superintendent of the Botanical Gardens in Paris, in 1794 pro-fessor of morals at the Normal School, and in 1795 a member of the Institute. His work, which is largely influenced by Rousseau, and deals almost entirely with sentimental and imaginative themes, has had a great influence on Fr. prose style. His best known books are: Voyaye à l'Île de France, 1773; Eludes de la Nature, 1783-8; Paul et Virginic, 1787; La Chau-mière Indienne, 1791; and Harmonies de la Nature (pub. posthumously). His works and correspondence were collected with a Life by Aimé Martin, See also biographies and 1818-20. critical studies by Lescure, Maury, and Arvède Barine.

Bernardines is a name which is sometimes used as a synonym for Cistercians, the order of monks founded by St. Bernard. Originally the name was generally used of the Cistercians of the Clairvaux branch of the ofder. For fuller particulars,

see CISTERCIANS.

Bernardino of Siena, Saint (1380-1444), It. Franciscan frier, b. at Massa Franciscan Carrara. Entered Order, 1404; appointed vicar-general, 1438. He restored the strictness of the early monastic rule, was famed the early monastic rule, was famed as a preacher and wrote several mystic works. He founded the 'Fratres de Observantia,' a branch of the Franciscan Order, munbering over three hundred monasteries in Italy in his own time. B. was canonised as a saint, 1450. His writings were pub. in Venice, c. 1594, again in 1745, and in Paris in 1636. Consult Toussaint, Das Leben des heiligen Bernhard (Descenting) 1873. Mary Allies. (Regensburg), 1873; Mary A Three Calholic Reformers, 1879. Allies,

Bernau, a tn. of Brandenburg, Prussia, 13 m. N.E. of Berlin. weaving woollen, cotton, and silk vindustries. Pop. (1900) 8348.

Bernauer, Agnes, the daughter of a poor barber-surgeon of Augsburg, was married secretly to Albert, eldest son of Ernest, Duke of Bavaria, Munich, in 1432: banned from a tournament by his father for his apparent illegal connection with Agnes, Albert openly acknowledged her as his wife, but in his absence she was charged with in : witchcraft, condemned, and drowned protess of South Protess in the Danube. One of C. F. Hebbel's Albans. Having passed her girlhood

prin. tragedies, Agnes Bernauer. 1855, is based on the story, and Otto Ludwig left an unfinished play on the same subject.

Bernay, a tn., dept. of Eure, France, on the Charentonne, on the Western Railway, 31 m. from Evreux; pop. 5973. A great fair for Normandy horses is held annually, and there are cotton manufactories, and bleaching and dye-works. The abbey, round which the town grow, was founded in the 11th century. Its buildings are

used for civic purposes.

Bernays, Jakob (1824-81), German-Jewish philologist, born in Hamburg, educated at the university of Bonn, where he became librarian and professor in 1866. His works, dealing with classical philology and Greek philosophy, were ed. by Usener and pub. at Berlin in 1885. His most im-portant book is an ed. of Lucretius,

1856. Bernays, Lewis Adolphus (1831-1908), Australian scientist, born and educated in London, subsequently emigrating. He was an officer of the New South Wales parliament during 1853-9, and after 1860 clerk of the Queensland Legislative Assembly. He founded the Queensland Acclimatisation Society, and pub. sev. works on economic botany.

Bernburg, a tn., Anhalt, Germany, till 1865 cap, of the duchy of Anhalt-B. Pop. 34,929. In the Bergstadt, on r. b. of the Saale, is the old duent castle. Machinery and boiler-making, pottery and chemical works are the

chief industries. Berners, John Bourchier, Lord (1467-1553). translator, son of Sir Humphrey B. (a descendant of Edward III.), who was killed at the battle of Barnet, fighting for Edward IV. John was sent to Oxford at an early age, and became later a great favourite of Henry VIII., who made him Chancellor of the Exchequer for life: he was made governor of Calais, me: ne was made governor of Calais, where he died. At the king's command he translated the Chronicle of Froissart, 1523-5, the work being printed by Pynson; The Golden Book of Marcus Aurelius, 1534: History of Arthur of Lytell Brytaine (Brittany); and the Romance of Huon of Bordeaux. He also wrote a comedy called the in Vineau mean C Go to my inc-He in Vineam meum ('Go to my vine-yard'), which was acted in the great church of Culais after vespers. Walpole's Royal and Noble Authors.

Berners, or Barnes, Juliana (b. 1388, 183), is the reputed author of the Boke of St. Albans, a treatise on hawking and hunting. The first cds., of

at court, she must have retained her Christian IV.'s Danish army in 1625

S. of the Canton of Berne, Switzer-land, but often extended to include the range of the Alp- from the upper Rhone valley northwards, and from the Lake of Geneva to the Lake of Lucerne, thus lying also in parts of still being general in command of Valais, Vaud, Fribourg, Lucerne, the Protestant forces lie campaign Uri, and Untervalden. It is the most of 1638 was successful with victorics frequented of Alpine dists. by tourists and visitors, not only in the summer but also in the winter. The chief centres from which expeditions are Breisach. He died at Breisach the made are: Thun, the cap of the B.O., following year See Live which formed a separate canton of the 1828, and Droysen, 1885. Helvetic Republic, 1798-1802; Inter-laken, 17 m. by rail from Thun; Schynige, Platte, Lauterbrunnen, and Grindelwald, one of the most freresorts in Switzerland: Meiringen, the meeting place of many routes; Mürren and Kande-steg. The principal peaks of the B. O. are the Finsteraarhorn, 14,096 ft.; the Aletschhorn, 13,721: the Jungfrau, 13,669; the splendid view from Interlaken is famous, Mönch, 13,168; Gross Schreckhorn 13,386; Gross Viescher-horn, 13,285; Eiger, 13,042; the three peaks of the Wetterhorn, 12,166, 12,149, and 12,110. The views from 49, and 12,110. Sparrhorn, 9928, Eggishorn, The highest 9626, are well known. passes are Lauithor, 12,140, Mönch-11,680, and Jungfranjoch, 11.385, leading to the Eggishorn from

Stadtlohn, 1622-23, He

love of field sport, after entering the and later rose to high rank in the convent. John Haslewood, who pub. army of Gustavus Adolphus. His a facsimile of the work in 1811, claims splendid leadership in command at that she is the earliest Eng. author of Lützen. 1632. after Gustavus's death, Bernese Oberland, strictly the upper country or 'highlands' in the S. of the Canton of Berne. Switzen Imperialists. In 1633 he captured Regensburg, but was crushingly de-feated by Gallas at Nordlingen in 1634. On the entry of France into the war he took service with her, at Rheinfelden. Wittenweiher, and Thaun, and the capture of one of the strongest fortresses in Europe, See Lives by Rose,

Bernhardi, Theodor von (1802-87), a Ger. historian and diplomatist, born in Berlin, and died at Hirschberg, Silesia. In 1865 he entered the Prussian diplomatic service; he was, at first, secretary to the legation at Florence, and between 1866 and 1871 was Prussian ambassador at Lisbon and Madrid. He wrote on historical subjects, his works including Denk-würdigkeiten aus dem Leben des Rus-sischen Generals Karl Friedrich von Toll, 1856-8, and Geschichte Russ-lands und der Europäischen Politik in den Jahren, 1814-31, 3 vols., 1863-77.

Bernhardt, Sarah, Fr. actress, was born in Paris, 1845, of a Jewish family named Remard; she was baptised with the name of Rosine and was brought up in a convent; after gaining prizes for tragedy and comedy Lauterbrunnen, Grindelwald, and the at the Conservatoire she appeared in Wengorn Alp respectively. The a small part in Racine's Iphigénie at the Comédie Française in 1862; in to Leukerbad, the Grimsel, 7100, with a carriage-road, from Meisingen to the and made her first marked successes. Rhone Glacier, and the Great and as Zanetta in Coppee's Le Passant, Little Scheidegr, 6434 and 6772, from 1869, and as the Queen in Hugo's Grindelwald to Meisingen and Lauter-Ruy Blas. Returning to the Française brunnen. The three largest glaciers after the war, her great performances in the Alps are in the B. O., viz. the in the title rôle of Racine's *Phèdre* Great Aletsch, 164 m., the Unteraar, (1874), the test part of Fr. tragedy, and the Fiescher, 10 m. and as Doña Sol in Hugo's *Hernani* Bernesque Poetry, a type of verse (1877), proclaimed her as the suc-in which the thought is a combination cessor to Rachel's vacant place on of satirical wit, raillery, and philo-the Fr. stage. In 1880 she broke with sophy. The name is taken from the the Comedie Française on the prowork of Francesco Berni (1497-1535), duction of Angier's Les Aventuriers and modern examples of the school and had to pay heavy damages. She are Byron's Don Juan and Ibsen's began her triumphal tours of the Peer Gint.

Bernhard of Saxe-Weimar, Duke Scribe's Adrienne Lecourreur, Dumas (1604-39), one of the great Protestant fils' Dame aux Canélias, and Meilhac generals of the Thirty Years' War, and Halevy's Frou-Frou. Sardou's was the youngest son of John, third plays Fédora (at the Vaudeville), Duke of Saxe-Weimar. At the begin
Théodora, La Tosca, and Cléopâtre ning of the war he was present at the (with Moreau) were specially written defeats of Wieslock, Wimpfen, and round her emotional and magnetic joined personality. These with Richepin's

Nana Sahib and Barbier's Jeanne is referred to as 'poesio bernesca.' Arc were her chief successes during her occupancy of the Porte St. Martin theatre (1883-90). During these him a drudgery for a canonry in the years and from 1891-93 she toured practically over the whole world, restricting not only the chief towns of Refactionally of Rolland's Orlande (Refactionally) of Rolland's Orlande (Refactionally) of Rolland's Orlande visiting not only the chief towns of Europe and the U.S., but also Australia and S. America. She moved to the Renaissance theatre in 1893 with Jules Lemaitre's Lcs Rois, where she also played in Sardou's Gismonda, 1894. In the first of Rostand's poetic dramas, La Princesse Loin-taine, 1895, she created the part of Mélissande, to be followed by ; Photine in the same author's religious drama, La Samaritaine, 1897. Her appearance in Magda, 1895, a French translation of Sudermann's Heimat, marked a new departure, to be followed (1899) by her impersonation of Hamlet, a doubtful though daring experiment. She repeated the impersonation of male characters as the hapless Duke of Reichstadt in Rostand's L'Aiglon in 1900 at the Theatre Sarah Bernhardt. Her adaptation of De Musset's Lorenzaccio and the revival of Hugo's Angelo must be noticed. Her latest new play (1912) is Mouillot's Queen Elizabeth, in which she played the title rôle. Gifted with a wonderful voice, which can range over every note of human passion, and with an intensely vivid personality, the 'divine Sarah' re-presents at its highest the emotional can range over every note of human passion, and with an intensely vivid personality, the 'divine Sarah' represents at its highest the emotional as distinct from the intellectual type of actress. To compare her playing with that of Eleanora Duse in such parts as Magda or the Dame aux Camélias is to realise the creative powers of two actresses of distinct schools of art. It is a constant to the Merch Empty of the Earl of Derby in 1834, and its flesh is used for food.

Bernier, François (d. 1685), 'n most curious traveller '(as called by most curious traveller '(as called by the degree of doctor at Montpellier; be set out on his travels in Palestine and Was physician for cight that bear learn the freedom given for her

that has been the made to S. B. in the constructed and zebe. mechanical plays of Sardou. She married, in 1882, M. Jacques Damala, She a Greek, from whom she separated in the following year. Her Life has been written by Jules Huret, 1889; see also he double Vie, he

19 (1880-75),Ger. philologist, born at Landsberg,

1830; Grundriss der griechischen Luteratur, 1836-45, and an ed. of Suidas, vols. 1834-53.

Berni, Francesco (1497-1535), is the chief of Italian comic poets. His tect, was invited by Popo Urban popularity is evidenced by the fact VIII. to submit designs for the emthat since his time burlesque poetry bellishment of St. Peter's at Rome.

largely on his complete revision (Refacimento) of Boiardo's Orlando Innamorato, which was the basis of Ariosto's masterpiece, Orlando Furioso. His witty, graceful verse forms a pleasant contrast to the unpolished lines of Boiardo.

Bernicia, an A.-S. kingdom, said to have extended from the Tyne to the Forth; the first king was Ida, 547-559, and his cap. Bamburgh. Athelfrith united the southern in-dependent kingdom of Deira with B. as one kingdom, Northumbria. After the death of his conqueror Edwin, 633, it was divided again, but shortly afterwards the Bernician dynasty under Oswio became supreme. The see of the bishopric of B. was at Lindisfarne and later at Hexham.

Bernicle, scc BARNACLE.

Berniele or Barnacle Goose, the Anser Berniela, is an arctic bird which visits Britain in winter. It receives its name from an anct. fable that it was an offspring of the bar-nacle (q.v.). It is about 2 ft. in length, weighs about 5 lbs., is black and white in colour, marbled with blue the bar of the b

to the Mogul Emperor Aurungto the Mogul Emperor Aurung-zebe. He wrote on his return to France a History of the Empire of the Great Mogul, which appeared in 1670, and a continuation of this the next year; they were reprinted under the title of The Travels of François Bernier, and have been translated into all European languages.

Bernina, the name of a mt., Piz B., 13,304 ft., and of a pass, 7645 ft., in the Rhætian Alps, canton of Grisons, Switzerland. The pass, over which there is a carriage road, leads from Pontresina, Upper Engadine, to Tirano in the valley of the Adda, Italy. The B. Alps form a group lying between the Maloja and the Reschen Scheideck passes. The Piz B. was first climbed in 1850.

Bernini, Giovanni Lorenzo (1598-1680), sculptor, painter, and architect, was invited by Pope Urban VIII. to submit designs for the embellishment of St. Peter's at Rome. which there is a carriage road, leads

The splendid colossade was the fruits: of the invitation. In 1663 he was called to Paris by Louis XIV., and although his design for the Louvre was rejected in favour of Perrault's, he returned to Rome, enriched by gifts as well as honours.

Bernoulli, or Bernoulli, the name of a family of mathematicians and scientists who were famous throughout Europe. Originally residents of Antwerp, they were driven by the persecution of the Spaniards to find refuge first in Frankfort, and after-

wards in Basel:

Jacques Bernoulli (1654-1705), born at Basel, was esteemed in his own day as a versifier in Latin, German, day as a versiner in Latin, German, and French. He taught himself the elements of geometry against his father's wishes, and from 1676 to 1682 travelled in France, England, and Holland, meeting learned men and extending his own knowledge of mathematics. In 1687 he was appointed to the chair of mathematics at Rasel where he remained until his at Basel, where he remained until his death. Amongst other investigations, he solved Leibnitz's problem of the isochronous curve, determined the curve formed by a chain hanging between two supports and the curve formed by an elastic rod supported at one extremity and bent by a weight at the other.

Jean Bernoulli (1667-1748) was aided by his brother Jacques in his early mathematical studies, but has achieved a higher reputation as an independent discoverer. He became professor of mathematics at Groningen, and after holding the position for ten years, succeeded his brother in the chair of mathematics at Basel. His works are numerous and important, and amongst his discoveries was that of the exponential calculus. Three of his sons achieved distinction

in mathematics.

Nicolas Bernoulli (1695-1726), after a youth of great promise, was appointed professor of mathematics at St. Petersburg, but died after holding the office for about eight

months.

Daniel Bernoulli (1700-82), brother of the preceding, studied medicine as well as mathematics, and in 1725 was appointed professor of mathematics at St. Petersburg. In 1733, disturbed by the state of his health,

studied in France, and became pro-fessor of eloquence in Basel. He succeeded his father in the chair of mathematics in 1748. On three occasions he received the prize of the Academy of Sciences at Paris, his subjects being the capstan, the propagation of light, and the magnet. His two sons, the grandsons of the first Jean B., were also accomplished mathematicians.

Jean Bernoulli (1744-1807), became astronomer royal at Berlin at the age of nineteen, and subsequently held the office of director of mathematical studies at the academy of Berlin.

Jacques Bernoulli (1759-89), brother of the preceding, studied law, but could not be restrained from his natural enthusiasm for geometry. After acting as a substitute for his uncle Daniel at the university of Basel for some time, he became professor of mathematics at St. Petersburg in 1788.

Bernoullian Numbers are numbers used in determining the sum of certain mathematical series. For example, the sum of the same powers of the natural numbers from 1 to n may be expressed by the following formula, r denoting the power:—

$$S_{n} = \frac{n^{r+1}}{r+1} + \frac{1}{2}n^{r} + B_{1}\frac{r}{2}n^{r-1} - B_{2}\frac{r(r-1)(r-2)}{4}n^{r-3} + B_{3}\frac{r(r-1)(r-2)(r-3)(r-4)}{6}n^{r-5} + \cdots$$

the signs of the series being alternately + and -, starting at the third term. The quantities symbolised by B₁, B₂, B₃, etc., are known as B. N., the first six of which are $\frac{1}{5}$, $\frac{1}{6}$, $\frac{1}{6}$, $\frac{1}{6}$, $\frac{1}{6}$, $\frac{1}{6}$, and $\frac{1}{6}$, $\frac{1}{6}$. Thus the sum of the series, $1^5 + 2^5 + 3^5 + \dots + n^5$ becomes

$$\frac{n^6}{6} + \frac{n^5}{2} + B_1 \frac{5}{12} n^4 - B_2 \frac{5 \cdot 4 \cdot 3}{4} n^2 + zero$$

$$= \frac{n^6}{6} + \frac{n^5}{2} + \frac{5n^4}{12} - \frac{n^2}{12}.$$

The values of the first 250 B. N. to nine figures in each case have been published by Glaisher in the Cambridge Philosophical Society Transactions, xii. p. 384.

Bernstein, Eduard (b. 1850), Ger. Democratic leader and political writer.

work is concerned with many branches some time in journalism, editing the some time and was engaged for some time in journalism, editing the sof mathematics, including the in-lived in London from 1888 to 1901 on vestigation of the problems of hydrodynamics and consideration of the theory of probability with respect to the proof. some of the practical issues of life. and Well am Montag, and was elected Jean Bernoulli (1710-90), the third to the Imperial Reichstag. His works, son of Jean B., was born at Basel, mainly critical of the doctrines of

Karl Marx, include Gesellschaftliches diplomatist, the son of Andreas Peter und Privateigentum, 1891; an ed. of B., born at Copenhagen, died in the works of Lasalle, 1891-3; Die Kommunistischen und Demokratisch-Sozialistischen Bewegungen in England während des 17 Jahrhunderts, 1895; Die Vorausselzungen des Sozialismus und die Aufgaben der Sozialdemokratie, 1899; Zur Geschichte und Theorie des

Socialismus, 1900.

Bernstorif, Johann Hartwig Ernst, Count von (1712-72), a Danish states man, was educated by his grandfather, an able minister of George I. Although he knew many European languages, he could never speak Danish. Having been for six years ambassador at Paris, for twenty-one years following he controlled the foreign policy of his adopted country. The settlement of the disputes be-tween Russia and Denmark on the tween Russia and Denmark on the with phosphoric radiance, produced question of Holstein-Gottorp, was not by the eight bands of fused cilia, the least of his achievements. By the treaty of 1765, Catherine II. renounced all pretensions to Holstein. He always preferred to gair his order. Weria, or Kara-Feria, a th. of Macc-He always preferred to gair his order. The second device the specific form of the second device the seco by what were often very methods of diplomacy raby war. During the Seven Y he succeeded in preserving the neu- in 1375 a.D. Paul preached there in trality of Denmark. Dismissed from 54 a.D. 2. Anct. name of Aleppo, cap.

His motto was 'Integritas et rectum me custodiunt,' and he justified it. Bernstorff, Albrecht, Count von (1809-73), a German diplomatist and statesman, born at Dreilutzow, Mecklenburg-Schwerin. He was sent as envoy to Naples, 1840; appointed ambassador at Vienna, 1848; Naples, 1852; London, 1854-61, 1862-73. In 1861-2 he acted as Minister of Foreign

office by Struensee's intrigues, he rejected the overtures of Catherine II.

Affairs.

Bernstorff, Andreas Peter, Count (1735-97), a Danish statesman, born in Hanover, the nephew of Johann Bernstorff. As minister of foreign Bernstorff. As minister of assaure affairs in 1773, he took an active share are armed neu-

lussia, and policy. His Britain as

to the ter caused the

he was oblic. However, he was returned to power in 1784, and during the French Wars maintained a decisively neutral policy, Denmark's break and refused to commercial relations with France in He abandoned his former policy, directed against Sweden, and in 1794 entered into a treaty with that nation. He was a keen supporter of Liberalism and of the freedom of the press, and brought about the emancipation of the serfs.

Christian - Günther, Bernstorif, Comte de (1769-1835), a Danish Creuse, Nièvre, and Allier.

Berlin. He became minister of foreign affairs, 1793-1810, and Danish pleni-potentiary at the Congress of Vienna, 1814. He entered the Prussian service in 1818, and was minister of foreign affairs from 1818 to 1831.

Beroe, a small marine organism belonging to the coelenterate order of Ctenophora, subclass Nuda. It differs from the other genera of Ctenophora in having no tentacles of any kind, and in having a capacious stomodœum resembling the cavity of a thimble. It is conical or oval in shape, and there is a collenteric network all over the body, formed by anastomoses of the meridians and paragastric conuls. It is transparent and gelatinous, and shines at night with phosphoric radiance, produced

B.C., occupied by Rome and captured by Turkey

of a vilayet of the same name in N. Syria, Asiatic Turkey, on R. Kocik, 70 m. E. of the Mediterranean. The name of Bornea was given it by Seleucus Nicator, and it is mentioned as Helbon (> Aleppo) in Ezek, xxxii. 18.

Bérosus, a Babylonian priest, fl. c. 260 B.C. Josephus has preserved some fragments of his Babylonian-Chaldean history, which he wrote in Greek. They are trustworthy, we believe, because he had access to native documents, stored in the temple of Bel, and invaluable, as they refer to an obscure period in Asiatic annals.

Berosus is a genu- of coleopterous insects of the family Hydrophilide. The species inhabit ponds, in which they swim in an inverted position, and they probably feed on vegetable substance. They are nearly oval in shape, and of a dusky yellow hue.

Berre, the name of a small tn. and of a lake or lagoon, Etang de Berre, in dept. Bouches-du-Rhône, France. The salt-water lagoon, covering nearly 60 sq. m., lies near the sea, with which it is joined by the Canal de Bonc. N.W. is the Crau, an expanse covered with pebbles like a beach.

Berretini, see Contoxa, P. Da. Berri, or Berry, was in former times a prov. of France, bounded by Orleannais on the N. Nivernals and Bourbonnais on the E., La Marche on the S., and Tournine and Poitou on the W. It now forms the depts. of Cher and Indre, and part of those of

with his father to Italy, fought under Condé (1792-97), and came to England in 1801, where he married a Miss Anna Brown; this was annulled in 1814, and in 1816 he married Caroline Ferdinande Louise, daughter of Francis 1. of Naples, b. 1798, by whom he had a daughter, later Duchess of Parma, b. 1819, and a son, Henri, Duc de Bordeaux, better known as the Comte de Chambord, b. posthumously, 1820, after his father had been assassinated by L. P. Louvel at the opera-house, Feb. 13 of that year. After the revolution of 1830 the duchess landed in France in the hope of gaining the throne for her son; she was imprisoned, but on her secret marriage with Count Lucchesi-Palli being discovered, her political power vanished and she was released. Shed. in Switzerland, 1870.

Berrima, a township in Camden co., New South Wales, 40 m. N.E. of Goulburn. In a coal, shale, iron, and copper mining dist. Pop. 10,000.

Berruguete, Alonzo (1480-1561), a

Spanish painter, sculptor, and architect, the son of a painter, Pedro B. (q.v.) born at Paredes de Nava, near Valladolid. About 1503 or 1504 he went to Italy to study, where he made the friendship of Michael Angelo, Vasari, and Leonardo da Vinci. On his return to Spain, Charles V. appointed him court painter and sculptor, and superintendent of certain public building enterprises. B. com-pleted the royal palace at Granada, and designed the town hall at Seville and the palace of the archbishop of Toledo at Alcala. His finest piece of sculpture is 'The Transfiguration' in the Toledo Cathedral. There are paintings of his at Salamanca and Valladelid Valladolid.

Berruguete, Pedro (d. 1503), a Spanish painter who lived towards the end of the 15th century. Very little is known of his life, but from his work it appears that he was influenced by the It. school, and it is probable that he lived for a time in Florence. Most of his paintings are in the museum at Madrid. The frescoes in the cathedral at Toledo are thought to be the joint work of B, and another artist. Other works attributed to him are the 'Miracles of the Life of St. Peter,' 'St. Thomas Aquinas,' and 'St. Dominic' (at Avila), and 'Christ in the Garden' and 'The Resurrection' (at Madrid). He was the father and teacher of Alonzo B.

Berry is the name of a baccate or fleshy fruit, which differs from the

Berri, or Berry, Charles Ferdinand Duc de (1778-1820), born at Versailles, 1778, a younger son of the Counted (Artois, afterwards Charles X. of France. At the revolution he escaped their seeds embedded in the pulp. Many so-called berries have no right to the name, e.g. the holly-berry, which is a drupe; the strawberry, a pseudocarp formed from an eterio of achenes on a fleshy thalamus; while raspberries and blackberries are etærios of drupes. True berries are the gooseberry, tomato, currant. bleeberry, and grape, while the orange, melon, and cucumber come under this head, and the banana, in which overcultivation has destroyed the seeds.

Berry, a tn. of Camden co., New South Wales, on Berry R., 70 m. S.W. of Sydney. Pop. 2009.

Berry, Sir Edward (1768-1831), a British naval officer. He went to sea in 1779, and became a lieutenant four years later. In 1796 he first came under the notice of Captain Nelson, and for his services at the siege of Porto Ferrajo, B. received high praise and promotion to the rank of commander. As a volunteer on board the Captain, he distinguished himself for his daring at the battle of Cape St. Vincent. B. was captain of Nelson's flag-ship at the battle of the Nile, of which he later wrote a narrative. B. carried Nelson's despatches home on the Leander, when he was taken prisoner by the Fr., and on his arrival in London was knighted, 1798. B. took part in the action of Trafalgar, 1805, and of St. Domingo, 1806. He was created a K.C.B. in 1815, and promoted to the rank of rear-admiral in 1821.

Berry, Sir Graham (1822-1904), Australian politician, born at Twick-enham, and emigrated to Victoria in 1852. He entered the Legislative Assembly of Victoria in 1861, but lost his seat in 1865. He became member for Geelong West in 1868, and in 1870 became Treasurer in J. A. Macpherson's ministry, holding the same position under Sir C. G. Dufly during 1871-2. He became Prime Minister and Chief Secretary in 1875, and after a stormy term of office was defeated on a Reform Bill in 1880. He was again Prime Minister from Aug. 1880 to July 1881, and was one of the coalition leaders in 1883. He lived in London as Agent-General for Victoria during 1886-91. Berry, James (fl. 1655), a Shrop-

shire clerk who enlisted under Crom-well and became one of his favourite officers. He fought at the battle of Gainsborough, 1643, where he slew Charles Cavendish. In 1647 B. was elected president of the council of adjutors in the disputes between parliament and the army. In 1655 he

was sent to Nottinghamshire to suppress a rising there, and was subsequently made major-general of Hereford, Shropshire, and Wales. He sat He sat in parliament as member for Worcestershire in 1657, and was made a member of the council of state in 1659. B. took part in the overthrow of Richard Cromwell, which he after-wards regretted. On the Restoration, he was imprisoned in Scarborough Castle, and, refusing to acknowledge any guilt, was confined there to the end of his life. According to Richard Baxter, however, B. was released and batter, however, B. was recorded in a safer state than in all his greatness.' The chief authority on B.'s life is Baxter, whose autobiography, Re-liquiæ Baxterianæ, should be consulted for further information.

Berry, Sir John (1635-90), an eminent British admiral, born in Devon-He first went to sea in the merchant service, his first naval appointment being in 1663, when he served as boatswain of the Swallow in the W. Indies. He soon received promotion, and in 1667 commanded a squadron

of Fr. and St. Kitts.

himself at the battle of Sole Bay, and was knighted for his services. He was in command of the Gloucester when it was bearing James, Duke of York, to Scotland, and was shipwrecked outside the Humber. He became vice-admiral of the squadron in 1683 under Lord Dartmouth. His death, at Portsmouth, has been attributed to poisoning. Consult Campbell, Lives of the Admirals.

Berry, Mary (1763-1852), an Eng. authoress, born at Kirkbridge, York-shire. In 1788 she and her younger shire. In 1788 she and her younger sister, Anne, made the acquaintance of Horace Walpole, who held them in great affection, and left them in his will £4000 each and some property at Little Strawberry Hill. Mary B. collected and ed. the Works of Horace Walpole 1708 and also nub. England Walpole, 1798, and also pub. England and France: a Comparative View of ana rance: a Comparative View of the Social Condition of both Countries, 1844; and a Life of Rachael Wriothes-ley, 1819. See her Journals and Correspondence, 2nd ed., 1866. Berryer, Antoine Pierre (1790-1868),

French barrister and politician, was the son of a distinguished advo-cate and supporter of the Bour-bons. After the restoration he de-fended Ney before the chamber of peers, and was successful in his defence of other of Napoleon's generals. He had a large practice and was active on behalf

press offences. trials in which defence were

1826, Chateaubriand, 1833, and Montalembert, 1858. Elected before the revolution in 1830, he remained the only legitimist deputy till 1851; a strong Liberal, he never ceased to further the restoration of the Bourbons. He was elected to the Academy

in 1854. He died at Angerville.

Bersaglieri, i.e. 'sharpshooter,' a corps d'élile of infantry (rillemen) in the It. army. They were originally formed in 1836 in the Sardinian army. There are now twelve regiments, one to each army corps, of three battalions and one cyclist battalion each: their uniform is a dark blue with a red stripe and facings, but their chief distinguishing mark is the wide black slouch hat with heavy drooping plumes of cocks' feathers. They are trained to march at a sort of trot, alternating with the ordinary 'quick' or 'double' march, and can cover long distances at a remarkable speed.

Berseem, or Bersim (Trifolium Alexandrinum), the Egyptian name of a species of white clover which thrives well on salt land newly re-claimed from the sea. In the Nile Delta it is grown as fodder for horses, cattle, and other animals, and its cultivation prepares the land for

subsequent crops.

(from the 'sark,' Berserker shirt, of the bear, or the skins of other animals), is the name given, in Scandinavian mythology, to the twelve sons of the hero, Berserk, by the daughter of King Swafurlam, where the bed killed in bettle Hero. by the daughter of King Swaturam, whom he had killed in battle. Berserk was the grandson of the fair Alfhilde and the eight-handed Starkadder. His sons inherited his martial fury, which was called 'berserker' rage, as well as his splendid courage. They so terrified their enemies that they were regarded as being possessed of an evil spirit. According to one of an evil spirit. According to one legend they perished together in one combat. The name 'Berserker' was also applied to a race, or rather an association of warriors, who created so much confusion and distress by their continual warfare, that they were finally proscribed by Christian-'Berserker' is synonymous in

Norse with 'dauntless valour.'

Bert, Paul (1833-86), Fr. physiologist and politician, was born at \(\Data \text{us} \)

then under the influence of L. P. Gratiolet became a pupil of the great physiologist Claude Bernard. He was professor of physiology at Bordeaux and the Sorbonne, Paris. His prin. scientific researches and experiments were on the effects of air-pressure (La Pression barometrique, 1878), of the highest value for the disease known as 'Caisson disease;' on angesthetics and respiration, and on

the outbreak of the revolution of 1848, in which he was implicated. He organised the ambulance service during the Roman republic, 1849, and, with Sir James Hudson, worked in Naples for the liberation of political prisoners. In 1859 he founded, and for a short time worked on, a revolutionary journal at Genoa, but before long joined Garibaldi's force as a surgeon. From his headquarters at Genoa, he organised four Sicilian volunteer expeditions, and when Garibaldi went Naples, became his secretarygeneral. In this capacity he superintended the police, abolished the secret service, and founded infant asylums. He entered parliament in 1861, and after the fall of Rome became leader of the extreme left till his death. During his parliamentary career he made inquiries into the sanitary conditions existing among the peasants. Consult his Life, by Mario, 1888.

Bertha, the name of sev. reigning princesses of the early middle ages:

1. The daughter of the Frankish Christian king, Haribert or Charibert, married Ethelbert (560-616), King of Kent. She brought to England her confessor, Bishop Lindhard; she was allowed by the king to practise her religion at her oratory, St. Martin's, Canterbury, and thus paved the way for ' ission. called

She Bewas the daughter of Charibert, Count of Laon, and married Pepin before 742. Round her have grown many legends set forth in Adene's 13th century romance Berle aus grans piés. Charlemagne married Bertha (or Desiderata), daughter of the Lombard king Desiderius. Other Bs. of history are: 3. The daughter of Otto, Count of Savoy, wife of the Emperor Henry IV. 4. The daughter of Conrad of Burgundy, married Endes, Count of Blois, and then Robert II., King of of Boos, and then Robert II., King of France (970-1031). 5. The daughter of Burkhardt of Thurgau, and wife of Rudolf II., King of Burgundy (912-937). Her deeds of charity and picty gained her the name of 'the Good.'

Berthelot, Marcellin Pierre Eugène (1827-1907), distinguished chemist and politician of France. He was born at Paris in October, and was the

the effect of light on plant growth. In 1876 he became a deputy and threw himself into politics as a violent anti-clerical; he was minister of education, 1882, in Gambetta's ministry; in 1886 he was appointed a member of the staff of the Collège at the end of the same year.

Bertani, Agostino (1812-86), an It revolutionist, born at Milan. He practised medicine in Lombardy, till the outbreek of the revolution of in the Collège de France an appointed sample. in the Collège de France, an appointment which had been specially created for him. Two years carlier he had become a member of the Academy of Medicine. He succeeded Pasteur as permanent secretary to the Academy of Sciences in 1889. Somewhat pre-viously he had secured an appointment as inspector-general of educawhere its relation towards conscription received his particular attention. In 1895 he was minister of public instruction during the Goblet ministry. In 1901 his completion of fifty years' service in the field of science was publicly celebrated in Paris. His wife's death occurred only very short time before his own sudden end in 1907. His works include many papers and books, among them, Chimie organique fondée sur la synthèse, 1860; and Les carbures d'hydrogène. 1901; Science et philo-sophic, 1886; and Science et morale, 1897.

Berthier, Alexandre (1753-1815) one of Napoleon's generals, proclaimed the republic in Rome in 1798. chief of the staff he accompanied the emperor to Egypt, and also in the campaigns of 1812-14. On Louis XVIII.'s accession he surrendered Neuchatel, and submitted to the king. When Napoleon returned from Elba

he committed suicide.

Berthierite, a dark steel - grey mineral, composed of sulphides of iron and antimony. It occurs in elongated prisms, has a hardness of 2 to 3 and a sp. gr. of 4 to 4'3. B. is found in Auvergne and the Vosges, in Saxony, in Cornwall, and in Lower California. It receives its name from the Erench chamict. Pierre Rostling the French chemist, Pierre Berthier (1782-1861).

Berthold von Regensburg (1220-72). mediæval Ger. Franciscan preacher. born at Regensburg and educated in the Franciscan monastery there under David of Augsburg. After 1250 be took up the life of an itinerant teacher in Alsace, Switzerland, Austria, Hun-gary, Poland, Italy, S. Germany, Bohemia, and Moravia. His last years were spent at Ratisbon, where he His sermons, based on French died. models and full of realistic imagery, were always heard with enthusiasm. His teaching was mainly directed against luxury, the abuses of so-called

Louis Berthollet, Claude 1822), a Fr. chemist, born at Talloire in Savoy. He graduated in medicine at Turin, settled in Paris in 1772, and, having rapidly built up a reputation by his chemical researches, was elected a member of the Academy of Sciences in 1780. Five years later he frankly declared himself a convert to the new theories of combustion propounded by Lavoisier, although previously he had pub. papers in support of the old. He helped Lavoisier to reform chemical nomenclature, and was the first to advocate the use of chlorine as a bleaching agent. he regarded chlorine as oxygenated muriatic acid, he could not appreciate the nature of the chlorates which he discovered. Besides investigating the composition of ammonia, sulphuretted hydrogen, and prussic acid, he de-voted serious attention to the process of smelting and converting iron into Napoleon proved for him a generous patron.

Bertholletia is a remarkable genus of Lecythideæ growing in tropical S. America, and having only two species. The tree grows to a height of about 100 ft., and branches gracefully near the top. The fruit is a spherical case as large as a man's head, with four cells, in each of which are six or eight triangular seeds with hard and wrinkled shells. This fruit is of great weight, and is indchiscent. The seed is the Brazil nut of commerce, which

is nutritious as a food and yields an oil well suited for lamps. Berthon, Edward Lyon (1813-99), an inventor, born in Finsbury Square, London. He studied surgery at Liver-pool and Dublin, and lived for some years (1831-40) abroad, where he experimented on screws for pro-pelling ships. His model of a screw propeller was, however, rejected by the Admiralty, though adopted. In 1841 he wer

bridge, and took holy orde subsequently held

of ships, an instrument for discovering the trim of a boat, and collapsible boats, which were first ordered by the Admiralty in 1873. He wrote his reminiscences under the title Retrospect of Eight Decades, 1899.

Baroness of

'chivalry,' and the vices of the clergy. He was born at Lower Wesel. His 'Sermons' have been edited by Pfeiffer and Strebl (2 vols. 1862-80), and by Göbel (trans. into modern Ger. 1873). See his Life by J. Paul, 1896, and Unkel, 1882. for him. He married a daughter of John de Vere, Earl of Oxford, and in 1580 succeeded to his mother's title. In 1582 he was sent to Denmark to discuss the commercial relations of England with that country, especially the position of Eng. merchant ships on Danish seas. In 1585 he petitioned Frederick II. on behalf of Henry of Navarre; and was made governor of Bergen-op-Zoom, 1586, in succession to Sir Philip Sidney. He was present at the attack on Axel, 1586, at the attempted relief of Sluys, and succeeded the Earl of Leicester as commander of the Eng. forces in the Low Countries, 1587. Subsequently he was placed at the head of an army Subsequently he which went to the assistance of Henry of Navarre at Dieppe, 1589, and was present at the capture of Vendome, Mons, Alencon, and Falaisc. He was appointed governor of Berwick and warden of East March, 1598-1601. Consult Lady Georgina B. Fire Generations of a Lonal House, 1845.

Bertie, Richard (1517-82), the husband of the Duchess Dowager of band of the Duchess Dowager of Suffolk, in her own right Baroness Willoughby de Eresby, and father of Peregrine B. (q.v.). He was born in Hampshire, and became a scholar of Corpus Christi College, Oxford. He was attached to the household of Thomas Wriothesley, the Lord Chan-cellor: as his wife was not a Catholic. cellor: as his wife was not a Catholic, he felt the danger of living in England under the rule of Queen Mary, and in 1555 escaped with her to France, and after running great dangers, they finally were kindly received by the king of Poland, and remained in that country till the death of Mary. He sat in parliament in 1662-3 as a knight of the co. of Lincoln. There is a monument to his memory and to that of his wife in Spilsby Church. Lincolnshire.

Bertie, Robert, first Earl of Lind-

the eldest son of , and godson of He joined the of the Earls of

Cadiz, on its capture, 1597. He succeeded to his father's title in 1601. and from his mother, the daughter of John de Vere, Earl of Oxford, he inherited the office of Lord High Chamberlain, 1626. He was made a control of the Dath in 1626. Knight of the Bath in 1605, and created Earl of Lindsey in 1626. In Bertie, Peregrine, Lord Willoughby created Earl of Lindsey in 1826. In de Eresby (1555-1601), a British 1628, after the assassination of Bucksoldier, son of Richard and Catherine ingham, he was appointed Admiral B., Baroness of Willoughby, de of the Fleet, and headed an expedi289

tion (which failed) for the relief of for suspected royalist tendencies. La Rochelle. He loyally supported Three years later he returned again, Charles I. during the Civil War, and died from wounds received at the battle of Edgehill in 1612.

Review Willoughby Courts Feet of Three years later he returned again, taking up the management of the battle of Edgehill in 1612.

Bertie, Willoughby, fourth Earl of Abingdon (1740-99), an Eng. statesman. He was educated at Westminster School and at Magdalen College, Oxford. He early made the acquaintance of Wilkes, whose democratic principles he supported. B. succeeded to the earldom in 1760, and frequently spoke in the House of Lords, taking care, by means of handsome fee, to procure the insertion of his speeches in the newspapers. He pub. numerous tracts and pamphlets, which include Thoughts on Burke's Letter on Affairs of America, 1777, and A Letter to Lady Loughborough, 1798, which is a eulogy of the French Revolution, and passed

through eight editions.

Bertillon System. Anthropometry, the name given to this system by its inventor. M. Alphonse Bertillon, consists of a careful measurement of certain parts of the human body which he found by diligent research to be practically unchanging after full growth. By these it is possible so to classify any individual as to be able to identify him without fail for the rest of his life. For police purposes this was invaluable, and Bertillon's this was invalidable, and Berghon system was adopted in most civilised countries. The essential measurements are these: (1) Length of head, (2) breadth of ditto, (3) length of middlefinger, (4) of left foot, (5) of forearm from elbow to tip of middle finger. Each of these measurements was classified as small, medium, or large, and height, length of little finger, and colour of eyes were also observed. Each person's complete record was entered on a card, and these cards were compared and sorted so in-geniously that any particular one required could be found with great quickness. The measurements, however, had to be so extremely accurate. and required such carefully trained observers, that the process of 'Bertillonising' was slow and expensive. As the slightest mistake in one respect might vitiate a whole record, it was necessary to take the mean of at least three measurements. In 1897 the system was superseded in India by Galton's simpler and cheaper 'inger-print records,' which were

adopted in England three years later. Bertin, Louis François (1766-1841), the 'father of Fr. journalism,' born in Paris in December 1766. He wrote for the Journal Français during the French Revolution. He founded the Journal des Débuls after the 18th Brumaire. In 1801 he was banished

for suspected royalist tendencies. Three years later he returned again, taking up the management of the paper. Meanwhile Napoleon had altered the title to Journal de l'Empire. Government censorship and control followed. He regained possession in 1814, still supporting the royalist cause till his death in 1841. He was of a family possessing many famous members, all of whom were concerned with the Journal des Débats.

Bertin, Louis Marie Armand (1801-54), Fr. journalist, was the son of the more famous Louis François B. After the Restoration he came to England as Chateaubriand's secretary. In 1820 he obtained a position on the Journal des Débats, and, on his father's death in 1841, became editor.

Bertinovo, or Bertinoro, episcopal tn. of Forli, Italy, 7 m. S.E. of Forli, It has mineral springs. Pop. 7800.

Bertran de Born, Viscount Bertran de Born, Viscount of Hautefort in Périgord (b. c. 1140), Provençal troubadour, born of noble family, near Limoges. He became a vassal of England by the marriage of Eleanor to Henry II. of England, and was patronised by Henry Curtmantle, son of Henry II. Dante has placed him (Inferno, canto xxviii.) among the 'sowers of discourd' in hell, where he appears carrying his severed head before him; this referring to the way in which he fostered and took advantage of the ill-feeling existing between the three sons of the king. During 1182-3 he joined with the barons of Limoges, Poitou, and Périgord in their revolt against Richard I. of England. He was besieged at Hautefort, and ultimately became reconciled to Richard. About 1196 he entered a Cistercian monastery at Dalon, where he died early in the 13th century. His poems, of which forty-five are still extant, deal with 'arms and men,' and are either in praise of his patrons or depreciation of his enemies. The style is rough but effective, and the love-poems and two 'planhs' on the death of Prince Henry, are tender and sincere. They have been ed. by Stimming, 1879 and 1892, and Thomas, 1888.

Bertrand, Henri Gratien, Count (1773-1844), Fr. general. He entered the army as a volunteer at the outbreak of the French Revolution. He was made a colonel by Napoleon during the Egyptian expedition, and was afterwards his aide-de-camp at Austerlitz. Napoleon further honoured him by appointing him grand marshal of the court in 1813. When the Fr. army crossed the Danube at Wagram, it was under B.'s direction that the building of the bridges was organised. In 1814 'he accompanied Napoleon

to Elba, and returned after Waterloo | Succession, by defeating the allied to St. Helena with him. After forces under General Stanhore in the Napoleon's death he was elected deputy in 1830 by Louis XVIII., and later brought the remains of Napoleon to France. He died at Chateauroux, and owes a great popularity to his

fidelity to his master.

Bertrand, Joseph Louis François (1822-1900), Fr. mathematician, b. in Paris and educated at the Polytechnic School. In 1842 he took up a position in the Service of Mines, and later held professorial posts at the Polytechnic School, the Normal School, and the Collège de France. In 1856 he became a member of the Academy of Sciences, in 1874 perpetual secretary of that body, and in 1884 a member of the Fr. Academy. He was appointed an officer of the Legion of Honour in 1867, and commander in 1881. He pub. works on arithmetic, algebra, calculus, thermodynamics, and pro-balities, and contributed largely to scientific journals.

Beruni, or Al-Beruni (d. 440), Arabian historian, who fl. at Ghazni during the reign of the Emperor Mahmud. His works, dealing with Indian history, include India (trans. 1888), and Chronology of Ancient Nations

(trans. 1879).

Bervic, Charles Clement (1756-1822), Fr. engraver. He was born at Paris. and acquired a lasting fame by his execution of a full-length engraving of Louis XVI. from the portrait by Callet. It ranks among the finest works of its kind extant. He died on

March 23.

Bervie, a market tn. and seaport in Kincardineshire, Scotland, on the

N. British Railway; pop. under 2500. Berwick, James Fitz-James, Duke of (1670-1734), was the illegitimate off-spring of the Duke of York, after-wards James II. by Arabella Church-ill, the sister of the famous general, Mariborough. Educated in France, on his father's accession he entered the imperial army, serving his ap-prenticeship as a soldier in Hungary under the celebrated Duke of Lorraine. Later he accompanied his father into exile, took part in the disastrous battle of the Boyne, and in 1690 was made generalissimo of the Irish forces on the side of James. Having witnessed the ruin of his father's cause at the naval battle of La Hogue, he transferred his services to France. In 1693 he was taken prisoner at the battle of Linden, but was soon exchanged for the Duke of Ormond. His attempt in 1696 to stir up a popular insurrection against William III. was fortunately a failure. After suppressing the religious wars in the S. of France, he distinguished himself, during the Spanish War of

forces under General Stanhope in the battle of Almanza, which secured Philip V. on the throne of Spain. The title of Duke of Liria and Xerica was conferred on him in recognition of his courage and good services. Though accused of cruelty and an ungracious, haughty demeanour, he ranks among the most celebrated captains of hisage.

Berwickshire, a Scottish county, bounded on the N. by Haddington-shire and the N. Sea; on the E. by the N. Sea; on the S.E. by Berwick on the S. by the Tweed and Roxburgh shire, and on the W. by Midlothian. Its area is 457 sq. m., and its coastline 21 m. There are three natural divs. of the co.: (a) Lauderdale, the valley of the Leader; (b) Lammermuir, the mountainous dist. of the hills of that name; and (c) the Merse (march or borderland), the widest area. The average height of the Lammermuis is 1000 ft., and their highest peak is 1749 ft. (Mt. Says Law). The coast of B. is precipitous, and only accessible at Eyemouth Harbour, Coldingham, and Burnmouth. St. Abb's Head rises and Burnmouth. St. Add's neaurises to 310 ft. and possesses a lighthouse. Of the rivers, the Eye is the only significant one that flows directly to the sea. The others, Leader, Eden, Leet, and Whiteadder, are tribs, of the Tweed. The largest of these is the Whiteadder. Small lochs are at Coldington. Leganguage and Spatisyands. ingham, Legerwood, and Spottiswoode.

The climate of B. is most suitable for the cultivation of vegetables, and it is not severe in winter owing to its maritime situation. The prin. grain crops are oats and barley, though wheat is raised in parts. Sheep and cattle are pastured in large numbers. Fishing is second in the industries.

 sed are in the Burn-The

chief fish caught are cod, haddock, herring, ling, lobsters, and crabs. far as mineral wealth is concerned, coal, copper-ore, and ironstone exist but in quantities too small to work, while the large deposits of limestone lie too far from the coal area to be of any value. Gingham and woollen cloth stuffs are manufactured at Earlston, while blankets and plaids are produced at Cumledge. industries are distilling and browing. Communication is maintained by the N. British Railway. The pop. of the co. in 1901 was 30,824.

The history of the co. reveals traces of Rom. and anct. British settlement. The co. became included in the king-dom of Northumbria after the Rom. In 1018 the co. was occupation. annexed to Scotland, but was taken by England finally in 1482. The co.

Berwick-upon-Tweed, a seaport, municipal bor., and self-contained co. of England. It is situated at the mouth of the Tweed on its N. bank. Its pop. in 1901 was 13,437. As a market tn. it has some standing. It forms a junction of the North Eastern and North British railways. Among its ruins are those of a bell tower which was used to alarm the neighbourhood during border raids. Of its public buildings the chief is the town hall (1760). The town is connected to the S. side of the river by two bridges. The prin. exports are grain, coal, and fish. Among its sea fisheries are those of the herring and salmon. The tn. has iron works and salmon. The th. has from works and shipbuilding yards. In border history the tn. has figured with some prominence. In 1296 it experienced a memorable siege by Edward I. In the 12th century it was one of the first scaports of the country. It was finally ceded to England in 1482, though it had been annexed in 1333 at the battle of Halidon Hill.

Boryl, a mineral consisting of silicates of beryllium and aluminium, represented by the formula Be Al. Si₄O₄. It crystallises in hexagonal prisms, usually of a greenish colour. The transparent green varieties are known as emerald, and those possessing a bluish-green colour termed aquamarine. Transparent B. is known as precious B., and was formerly esteemed as a gem, but the opaque varieties are known as common B. B. is widely distributed, being found in Aberdeenshire, the Mourne Mts. in Ireland, Siberia, Brazil, Ceylon, and many localities in

the United States.

Beryllium, or Glucinum, a metal of the magnesium group, discovered in the form of oxide in the mineral beryl in 1798. The oxide was first called glucina from the sweet taste of its salts, but was afterwards called beryllia by the Ger. chemists. The metal was first obtained by Wöhler in 1828 by reducing the chloride with potassium, when the metal appears as a dark grey powder. In 1855 Debray prepared it in a compact state by heating B. chloride and metallic sodium in separate receptacles in an atmosphere of hydrogen. The metal thus produced has a sp. gr. of 1.64, is

contains many picturesque ruins, is obtained by fusing beryl with twice among them being Fast Castle, Cockburnspath Tower, Dryburgh Abbey, and Hune Castle. Bibliography:

Minstrelsy of the Merse, W. S. acid, the excess of acid evaporated off, Crockett, 1889; A Short Border History, F. H. Groome, 1887.

Berwick-won-Tweed, a seaport.

Berwick-won-Tweed, a seaport. mainly the sulphates of B. and iron. It is poured into a hot and strong solution of ammonium carbonate, allowed to stand for some days, and then filtered. The filtrate contains the B., and on boiling B. carbonate is precipitated. The precipitate is redissolved in ammonium carbonate solution and steam blown through the liquid, when the beryllia precipitated.

Beryx, a genus of acanthopterygious fossil fish of the family Berycidæ. It was a deep-sea fish, perch-like in form, and some species, e.g. B. ornatus, are found fossilised in the chalk of

Sussex,

Berzeline, or Berzelianite, a silver-white mineral composed of copper scientide (Cu₂Se), occurring at Skrike-rum in Sweden and also in the Harz Mts. B., as named by L. A. Necker, is a white translucent mineral found near Albano, and composed of silicates of aluminium, sodium, and calcium.

Berzelite, or Berzeliite, a yellow or vellowish-red mineral occurring as isometric crystals and consisting of orthoarsenate of calcium, magnesium. or manganese. It is found at Langban in Sweden. Pyrrharsenite, in which antimony takes the place of part of the arsenie, is lighter in colour and occurs at Orebro in Sweden.

Berzelius, Jóns Jakob (1779-1848), Swedish chemist, born at Väfversunda Sorgard, Sweden. He studied chemis-try and medicine at Upsala Univer-sity, and in 1802 took his M.D. From 1815 to 1832 he fulfilled the professorship of chemistry in the Caroline Medico-Chirurgical Institute at Stockholm. In 1818 he became perpetual secretary to the Stockholm Academy of Science. His special study was now devoted to the significance of atomic and molecular weight, and he pub. a table of results remarkable for their correctness. He held that the essence of chemistry was based upon oxygen. Later he developed an acute interest in electrochemistry. He was the first to adopt the symbol system of alluding to chemical substances. His works include Lehrbuch der Chemie and Jahresbericht, both works notable for their literary quality besides their scholarship. Of the latter work, which was a yearly record of Stocksilver white in colour, melts at a lower temperature than silver, and in the powdered state takes fire when heated improvements of the blow-pipe and in air. Beryllium oxide, or Beryllia, stances tellurium, selenicum, silicon, The Building of the Kosmos, 1894: thorium, titanium.

Bes, an Egyptian deity, prominent after the twentieth dynasty, whose functions included art, song, dancing, and childbirth. He is probably of and childbirth. He is probably of foreign origin; was also worshipped in Cyprus and Phœnicia, and has been identified with Typhon. He is repre-

dept. of Doubs, of which it is the cap. Its pop. in 1996 was 41,760. Hills surround its position on the l. b. of the Doubs, at the foot of the W. Jura Mts. A feature of the tu, is its shady Пills promenades. It is the seat of an archbishop. The chief industry is watch-making, which came first into the city from Neuchâtel about the latter part of the 18th century. Most of the watches sold in France are manufactured here. Lesser industries embrace enamelling, saw-mills, printing works, distilleries, and the manuf. of paper, boots, machinery, hosiery, leather, clastic, and artificial silk. A tunnel under the city allows the passage of the Rhine and Rhone Canal. The tn. is strongly fortified. The city is of great antiquity. In the time of Julius Cæsar it was known as Vesontio, while Marcus Aurelius made it a 'colonia.' Till 1789 it was the seat of a 'parlement.' During its history, specially during the earlier centuries following Marcus Aurelius, it suffered demolition and reconstruction alternately.

Besant, see BEZANT.

Besant, Annie, Mrs. (née Wood), (b. 1847), an English theosophist. She was born in London, and in 1867 married the Rev. Frank B., Vicar of Sibsey, Lincolnshire. In early life she was a ritualistic High Churchwoman, but became a free-thinker, and was legally separated from her husband in 1873. In the following year she joined the National Secular Society; she co-edited with Charles Bradlaugh, M.P., The National Reformer, and took a prominent part in his Free Thought and Radical movement. She joined in various labour movements, became a member of the Fabian Society, and of the London School Board, 1887-90. In 1889 she became a pupil of Mme. Blayatsky, and joined the Theosophical Society, of which she has been president since 1907. She has lectured on theosophy in all parts of the world, and has founded at Benares the Central Hindu Gollege, 1898 and the Central Hindu Girls' School, 1904 She has pub. her life, under the title Through Storm to Peace, 1893, and is a voluminous writer. Her works include: Reincar-nation, 1892; Death and After, 1893;

Four Great Religions, 1897; Avaluras, 1900; A Study on Consciousness. 1904 : Theosophy and the New Psuchology, 1904; The Wisdom of the

Upanishats, 1906. Besant, Sir W Walter (1836-1901), Eng. author. He was born at Portsmouth on Aug. 14, 1836. His father was William B., a Portsmouth citizen. During his education he passed successively through King's London, and Christ's College, Cambridge. In 1859 he graduated as bridge. eighteenth wrangler, while during the years 1861-67 he was senior professor at the Royal College, Mauritius. The Palestine Exploration Fund made him secretary in 1868. He occupied this position till 1885. An interest in young and inexperienced authors and their invariably inadequate remuneration caused him to found a Society of Authors. This body was formed with the object of protecting literary aspirants from unscrupulous and grasping publishers. It was, in fact, a trade union of authors. This was founded in 1884, and Sir Walter filled its chair till 1892. He married in 1895 Mary Foster Barham, of Bridgewater, and shortly afterwards was knighted. On June 9 he died at Hampstead. Though Sir W. B. plunged into many fields of literary art, his greatest success was in writing novels. These enjoyed a great and lasting popularity. collaborated with James Rice in the production of the first of these works of fiction, and Ready-Money Mortiboy and The Golden Builerfly are two of the finest. The influence of Dickens is apparent, and a consequent tendency towards caricature, is detected. There are many indication, however, of clever humour, and excidences of superior observation. The establishment of the East End Institute, known as the People's Paltace, in the Mile End Road, was one of the direct results of his powerful books. All Sorts and Conditions of Men. This was a vivid picture of East End Ifife which he wrote alone, James Ricle having died. The sweating evil nexty received his attention, and expression of his indignation was found in The Whildren of Gideon. The work of Canoin Barnett and others in the interests of reclamation work in the East Little of London was given a valuable fillip by B.'s writing, for the movement was made popular by their influence. His other novels are Dorothy Forster, 1884; Amorel of Lyonesse, 1890; and Forster, Beyond the Dreams of Avarice, 1895. Besides the branch of fiction, critical and literary studies resulted in The French Humouriets, 1873; Rabelais, 1879; and biographics of Whittington, Captain Cook, and Richard Jefferies.

Among his works on the history and | Bulgarians, archeology of London the most im- Greeks, and Armenians. The chief portant is A Survey of London, which the third that are Akkerman, Bender, Byeltsi, unfortunately was never completed, Izmail, Khotin, Kishiner, Orgeyer, while other works on the same sub- and Soroki. ject evince a wide knowledge of Bessarion, John (1395-1472), was a London's history and a remarkable famous scholar who was instrumental grasp of its significance and relation in spreading the knowledge of Greek of Sir Walter Besant, 1902.

Besika Bay, a bay on the N.W. coast of Asia Minor. It is situated opposite to Tenedos, to the S. of the English fleet was stationed there.

Bernhard Beskow. von, Baron (1796-1868), a Swedish poet and dramatist, born in Stockholm. In 1825 he was appointed to the position of private secretary to the Crown Prince Oscar, and subsequently held certain minor offices at court. He was director of the Royal Theatre in 1831-2. His chief works are the poems, Karl chief works are the poems, Karl XII., 1819, and Sveriges Anor, 1824, and the tragedies Erik den Fjortonde, 1827-8, and Torkel Knutsson, 1830. See Rydqvist, Bernhard von Beskow.

Besnard, Paul Albert (b. 1849), a Fr. painter, born in Paris; he entered the studio of Cabanel in 1866, and won the Prix de Rome in 1874. In 1882 he received a commission to paint frescoes for the School of Pharmacy. His principal works are: 'St. Benoît et enfant,' 'La Vie renaissante de la mort,' 'Femme qui se Chauffe,' etc., and numerous delicate pastel drawings. In 1879 he married Charlotte Vital Dubray, a sculptor of some note.

Besni, or Beshni, a tn. of Asiatic Turkey, 50 m. N.W. of Urfa; pop. about 15,000.

Bessarabia, a gov. of S.W. Russia. The R. Pruth separates it from Moldavia and Wallachia on the W. and S., the Dniester divides it from Kherson and Podolia on the E. and W., while on the S.E. it is bounded by the achievements Black Sea. Its area is 17,614 sq. m. Spurs of the Carpathians invade the N. at a height of 800 to 1150 ft. soil is fertile and agriculture is the prevailing occupation, the chief crops being wheat, maize, barley, flax, tobacco, water-melons, fruit, tobacco, water-melons, fruit, vine, safron, and madder. The central belt is rich in timber, while lower are the rich pastures of the Budjuk Steppes. Manufs. are in their infancy, wine, 2.262.400 beings.

Gypsies. Germans.

to life's problems. See Autobiography literature over the W. of Europe. When the Gk. emperor went to Italy to effect the union of the two churches B. accompanied him. Having joined the Roman Church, he became Bishop entrance of the Dardanelles. During of Frascati, and later papal legate at the disturbances arising from the Bologna. Pope Eugene IV, had made Eastern Question, 1853 and 1877, the him cardinal, and he might himself have been pope but for his strong sympathies with Plato and other heathen philosophers. He Lequeathed his valuable collection of GL. MSS. to St. Mark's Library, Venice.

Bessbrook, market th. of Armagh, Ireland, 21 m. N.W. of Newry. Main industry, linen weaving and bleach-

ing. Pop. 3000.

Besse-en-Chendesse, a small tn. in

the dept. Puy-de-Dôme, France. Besseges, a tn. of S.E. France in the Gard dept., on the Ceze. In 1906 its pop. was 7662. Coal mines, ironworks, and blast furnaces make the

town important.

Bessel, Friedrich Wilhelm (1784-1846), Ger. astronomer. was born at Minden on July 22, 1784. A wish to study navigation, mathematics, and astronomy led him to leave a counting-house for the position of super-eargo on a foreign voyage. His incargo on a foreign voyage. His investigations on Halley's comet led to recognition by H. W. M. Holbers, who pub. his results. Further distinction met him on a brilliant investigation and report of the 1807 comet and he was installed by the King of Prussia as director of a new observatory at Konigsberg. Here he stayed from 1813 till his death. He tabulated a catalogue of 3222 stars, and pub. it under the title Fundamenta tronomiæ, 1818. Among his secondary was the His most important heliometer. astronomical work is Astronomische Untersuchungen, 1841.

Bessels, Emil (1847-88), Ger. Eclentist and arctic explorer, b. at Heidelberg, and studied natural science and medicine there and at Jena. His first Polar journey was made in 1869 to the regions lying between Spitzbergen, Novaya Zemlya, and Gillis Land, and Sheep, cattle, and goats are raised enabled him to demonstrate the here. The climate is extreme, while presence of the Gulf Stream E. of the rainfall is over 25 in. annually. Spitzbergen. In 1871 the U.S.A. gov. appointed him ship's physician and cloth, iron goods, and soap being the chief of the scientific dept. to the chief articles produced. The pop. is expedition under C. F. Hall in the mixed, and in 1906 consisted of *Polaris*. The vessel was wrecked and 2,262,400 beings. These comprise all Bessels' collections lost in 1873. Moldavians, Little Russians, Jews, He pub. an account of the expedition

Bessel's Functions, in mathematics, indicate certain relationships between two variables. F. W. Bessel introduced them in 1817 in investigating mathematical relationships in con-nection with planetary orbits. Later they have been employed in calcula-tions concerned with the vibrations of a stretched membrane, thus contributing to the theory of sound; and in calculations connected with almost every branch of mathematical physics. B. F. of order m is indicated by the symbol $J_m(\rho)$, and satisfies the differential equation:

$$\frac{d^2\mu}{a\rho^2} + \frac{1}{\rho} \frac{d\mu}{a\rho} + \left(1 - \frac{m^2}{\rho^2}\right)\mu = 0.$$

See Gray and Matthews, Treatise on

Bessel's Functions. Bessemer, a tn. of Jefferson co., Alabama, U.S.A., 16 m. S.W. of Bir-mingham. It has blast furnaces, rolling mills, foundries, machine shops, etc. Pop. 6500. Bessemer, Sir Henry (1813-98), an

English engineer, was born at Charlton, Herts. He was the author of many inventions, though the chief achievement with which his name is immediately connected is a special process of steel manufacture called the B. process. To-day the process has been equalled and eclipsed, but at the been equalled and eclipsed, but at the time of its introduction no other method of manuf. was so valuable, and it came as a revolution in the civilised world. His attention to steel had been caused by an attempt to improve the quality of artillery pieces. Difficulties in its adoption had to be surmounted, but finally B. profited to the extent of over a million pounds by his discovery. Among his other inventions, considerably less important than that of the new steel process, ant than that of the new steel process, were gold paint, a movable die for embossed stamps, and a saloon fitted to a ship which was guaranteed to remain level despite the violence of any sea. In practice the last named failed to justify its adoption.

Bessemer Process is a process for freeing wrought iron and low carbon freeing wrought from and low carbon steel from mechanically entangled cinder. It was first introduced in 1865 by Mr. (afterwards Sir) Henry Bessemer. By its cheapness and effectiveness, it soon displaced other methods, and is now generally used in Britain, the United States, and in many places on the Continent. It is largely used in making rails, ship plates, boiler plates, etc., though recently, other processes, such as the Siemens-Martin process, have come into competition with it. When Mr. Bessemer proposed to convert crude pig-iron into malleable iron while in

in 1876, and also Die Americanische a fluid state, and to retain the metal Nordpolexpedition, 1878. in such a state long enough for it to be cast into moulds, without employing any fuel in the process, the project was generally regarded as chimerical. was generally regarded as chimerical. It was, however, eminently practicable, as Mr. Bessemer demonstrated by erecting works, with borrowed capital, and underselling all his competitors. The principal of the B. P. is briefly as follows. Molten pig-iron is converted into steel by having a large number of fine streams of air forced through it, causing the orige. large number of fine streams of air forced through it, causing the oxidation of its impurities, such as carbon, silicon, and often its phosphorus and sulphur. The intense heat thus generated, without the use of any other fuel, is sufficient, not only to melt the iron and keep it in a molten state but to ruise its tenses, the sum of the property of the sum of the sum of the property of the sum of the state, but to raise its temperature to above the melting point of steel, that is to 1500° C. The B. converter, in which this process is carried on, is an immense retort, made of boiler plates, and lined with some refractory material, such as dolomite, firebrick, or ganister. It is suspended aloft, and mounted on axes at or near its and mounced off area at or near its centre of gravity. It is turned on trunnions, through the right one of which the blast is carried to the gooseneck, which delivers it to the tuyères at the bottom. There are two varieties of converters. The original one is undephosphorising, because it is lined with material, such as silicic acid. The dephosphorising or Thomas Gilchrist process is the name applied when the converter is lined with basic materials. It was patented in 1878. but it is only a modification of the B. P. For further details as to the proportions of carbon, silicon, sulphur, phosphorus, manganese, and copper in the different varieties of B. steel, and the character of the spectrum of the flames, etc., see the article on STEEL.

Besse-sur-Braye, a small tn. in the

Besse-sur-Braye, a sman vn. m dept. of Sarthe, France.
Bessonov, Peter Alexievitch (1828-98), Russian philologist, b. at Moscow; became professor of Slavonic literature at the university of Cracow in 1879. He pub. a large number of with Bulgarian

and literature.

collections of the popular songs and folklore of the Servian, Bulgarian, and Russian peoples. The Bulgarian collection appeared as Bolgarskiya Pesni in 1855,

peared as Bolgarskija Pesni in 1853, and the Servian as Lacarica in 1857.

Bessus (d. 328 B.C.), Satrap of Bactria under Darius III. In 331 B.C., after the battle of Gaugamela, he captured Darius, and, on being pursued by Alexander, murdered him. He was betrayed to Alexander and syst to death by him. put to death by him.

Best, George (d. 1584?), a British Panopticon, London, 1852; and navigator, who accompanied Martin Lincoln's Inn Chapel, 1854; and of Frobisher in 1576, 1577, and 1578 on St. George's Hall, Liverpool, 1854. his three voyages to discover the He was himself a composer, and N.W. Passage. B. pub. an account of arranged pieces for the organ. His these journeys under the title, A True publications are: The Modern School Discourse of the late Voyages of Dis-for the Organ, 1853, and The Art of several for the tradient of a Paragraph of Course Planing, 1879. coverie for the I inding of a Passage to Cathaya by the North-weast, under the conduct of Martin Frobisher, generall, 1578. The work was exceedingly popular, and was trans. into Fr., Lat., bable that B. was killed in a duel by Oliver St. John, Viscount Grandison, about 1584.

Best (afterwards Beste), Henry Digby(1768-1836), an Eng. writer.born at Lincoln and educated at the grammar school there. He took his B.A. degree at Oxford in 1788. In 1791 he degree at Oxford in 1785. In 1791 he took holy orders, but influenced partly by the writings of Richard Newton and partly by Abbé Beaumont, a Catholic priest in Lincoln, began to entertain doubts as regards the spiritual supremacy of the Church of England, and in 1799 was received into the Roman Catholic Church. In 1818 he left England or a time and 1818 he left England for a time and lived in France and Italy. He wrote on miscellaneous subjects; his works include: Four Years in France... preceded by some Account of the Conversion of the Author to the Catholic Faith, 1826; The Christian Religion priefly defended against the Philoso-phers and Republicans of France, 1793: Italy as it is, 1828; Personal

phers and Republicans of France, 1793; Italy as it is, 1828; Personal and Literary Memorials, 1829.

Best, Thomas (c. 1570–1638), a British naval officer, who went to sea about 1583. In 1612, while in command of the Red Dragon, defeated the Portuguese at Surat, and his vices and the portuguese at Surat, and his vices. tory estab. Eng. trading rights in India as equal to those of the Portu-guese. From Surat he sailed to guese. From Surat he sancu to and sev. of them have been traus. Incorporate and obtained permission to and sev. of them have been traus. Incorporate and sev. of the s but a charge of favouritism to his son was brought against him by the East India Company, and he was dismissed bet. See Alphabet, and B. from the service. In 1623 B. headed an expedition against the Dutch, who had blockaded a privateer at Aberdeen; he commanded the Vanguard in the unfortunate expedition to Rhe, beet; B.vulgarismacrorrhiza, the man-1627; in 1630 and 1632 he acted on gold-wurzel, used as food for cattle. commissions to report on various Betanzos, a tn. of Spain. It is navel matters; and in 1634 was apsituated to the S.E. of Corunna about

Eng. organist, born at Carlisle. He was Betelgeux, or a Orionis, a bright appointed organist of the Liverpool star situated in the eastern shoulder

Organ-Playing, 1870.
Bestiary (Fr.), a class of books which were in popular demand during the middle ages. It described all the animals in the universe, both living and fabulous. Part of the descripand It. Copies of the True Dis-ourse are very rare; it was included in Hakluyt's Voyages, vol. iii. (1600), tions illuminated the works. In which has been reprinted by the addition to their zoological value, Hakluyt Society in 1867. It is pro-they imparted many moral lessons in allegorical form. All the varying qualities of good and evil in the heart of man were personified by some creature or other of the beast world. As the age was then one of symbolism this is a natural characteristic. churches and other buildings of the middle ages there are many weird and fantastically-conceived creatures sculptured. It is believed that these supernatural conceptions were de-rived from the current Bs. The famous Physiologus of the Greeks was Bs. were derived. This Physiologus contained about fifty allegories. Old Syriac, Armenian, Ethiopic, Arabic. Icelandic, and numerous Latin versions of it were issued. Those of the Latin were Mai, Heider, and Cohier. Earlier than the 11th century a Ger. version was made. Philippe Thaun and Guillaume, a priest of Normandy, made a Fr. version in the 12th century. Richard de Fournival's Bestiary d'Amour is a satire upon the earlier works.

Bestushev, Alexander (1797-1837), Russian author. A captain in the army, he was exiled to Yakutsk for conspiracy in 1825, but entered the army of the Caucasus in 1829. Most of his novels deal with military life in the wild dists. of the Caucasus. They include Mullah Nurand Ammalet Beg,

Beta, second letter of Greek alpha-

Beta is the name of a European genus of Chenopodaceæ, many varieties of which are cultivated in Britain for food. B. vulgaris is the common

pointed Master of Trinity House. 10 m. Its pop. is 8122. Ancient Best, William Thomas (1826-97), an it was called Brigantium Flavium. 10 m. Its pop. is 8122. Anciently

Philharmonic Society in 1849; of the of the constellation of Orion. It is a

during whic from 1.0 to

from 1.0 to star in Section 5 minu to pte, i.e. it is reddish in colour and of a comparatively low temperature. The spectroscope reveals the presence of sodium, magnesium, and iron in its composition, but no hydrogen. B. has a small parallax, 0.02, which means that it is very remote, its distance being 160 light-years. Its brilliancy exceeds that of the sun many hundred times, and it is estimated that it is receding from the solar system at the rate of

fifteen miles a second.

Betel Nut Palm (Area catechu), a tree indigenous to Malaysia, but cultivated also in Southern India, Ceylon, Siam, and the Philippines. It grows about 50 ft. high, branchless, but bearing a crown of large fronds. The fruit, nearly the size of a hen's egg, contains the nut used by Asiatics for mastication. Gathered and husked before they are fully ripe, the nuts are then boiled, sliced, and sun-dried. Each piece for chewing is wrapped in a leaf of the betel pepper-vine, with some lime and often an aromatic flavouring. The betel reddens the mouth and blackens the teeth, but preserves them.

Beth, sec BEIT.

Betham-Edwards, Matilda, a poet and novelist, the daughter of Edward Edwards and Barbara, née Betham. She became Officier de l'Instruction Publique de France, 1891. Her publications are: Kitty, 1872; France of To-day; The Dream-Charlotte, 1896; The Golden Bee (bellads), 1896; A Romance of Dijon: Anglo-French Reminiscences, 1899; A Suffolk Courtship, 1900; Mock Beggar's Hall, 1901; East of Puris, 1902; Home Life in France, 1905; Literary Rambles in France, 1907; Poems, 1907; French Men, Ivomen, and Books, 1910.

Bethania, a post vil. of the co. of Forsyth, U.S.A. It is situated 8 m.

from Salem.

Bethany, a vil. 2 m. E.S.E. of Jerusalem. It goes under the name of Lazarus and his sisters. It is at the residence of Lazarus and his sisters. It is at the present day an insignificant place, boasting a mere 200 inhab. The only object of interest is the supposed tomb of Lazarus. Of the ecclesiastic buildings erected about the 4th contury little or no trace is existing. It is situated on Mt. Olive at a height of 2208 ft. above sea-level. The same name, B., is given to three tas., or rather mission stations of Germany, in S. Africa. They are situated in Great Namaqualand, Orange Free State and Transvaal respectively.

Bethel, a pile of ruins called to-day Beitin, and situated about 11 m. N. of Jerusalem. The name trans. is 'house of God.' Scriptural mention of it makes it the scene of Jacob's dream. Formerly the place was known as Luz. Abraham stayed here, while afterwards the Ark of the Covenant was deposited in its precincts. Still later it became a royal residence and a centre of heathenish adoration. About 2000 people in-habit the present villege.

habit the present village.

Bethell, Richard, Baron Westbury (1800-73), Lord Chancellor, born at Bradford-on-Avon: educated at Corsham, near Bath, Bristol, and Oxford; called to the bar as a member of the Middle Temple in 1823. His first success was in the case of Attorney-General v. Brasenose College. In 1840 he became a Queen's Counsel, and in 1841 was leader of the chancery bar. He made an unsuccessful attempt to enter parliament as M.P. for Shattesbury in 1847, but was returned for Aylesbury in 1851 and for Wolverhampton in 1852. In 1851 he was appointed Vice-Chancellor of the Duchy of Lancaster, in 1852 Solicitor-General, and in 1856 Attorney-He became Chancellor in General. 1861 on the death of Lord Campbell. He was forced to retire in 1865, owing to certain charges which were brought against him, but remained in public life until his death.

Bethesda: 1. A public bath of Jeru-Here Christ's healing of the impotent man occurred. Birkit Israel, situated in Jerusalem, has been identified with it since the year 1102. It is in that part of the city near the regate of St. Stephen and Omar's Temple. Other declarations of its site are those of Condor, who claims it to be identical with a spring called Gihon and En Rogel in the Kedron valley; and Schick who, in 1889, made a discovery of the remains of the pool's construction near St. Anne's church. 2. A small in of Carnarvonshire, from whose Nonconformist chapel it derives its name, and situated about 4 m. from Bangor to the The Penrhyn slate quarries. S.E. adjacent to the town, employ most of its 5799 inhabitants.

Beth - horon, Upper and Lower (modern Beit 'Ur et Tenhta and Beit 'Ur et Tenhta and Beit 'Ur et Poka), two vils. of Palestine.

10 m. N.W. of Jerusalem, on frontier between Benjamin and Ephraim. Joshua defeated the Amorites in the pass between the two (see Joshua x. 1-11), and Judas Maccabeus defeated the Syrians here in 166 B.C.

Bethlehem: I. The modern Beit Lalım, is situated 5 m. S. of Jerusalem, 2350 ft. above sea-level. It has no natural springs, but wheat, olives, etc., grow in its neighbourhood, and its wine is excellent. It is famous as the home of David, the scene of Ruth's story, and above cated at the universities of Strassall as the bp. of Jesus. Christian pilrimages thither began before A.D. 132. In A.D. 315 Constantine built a basilica, near which is a cave venerated, since Jerome's time, as the stable. 2. A post-bor. in the co. of Northampton, Pennsylvania, U.S.A. 1899; Prussian Minister of the Instable. 2. A post-bor. in the co. of Strate for the Interior, 1905; Imperial Secretary of Northampton, Pennsylvania, U.S.A. 1816 Cere, Empire, and Minisconnected by rail with Philadelphia, ter of State for Foreign Affairs, 1909. Bethnal Green, suburb in the E. of connected by rail with Philadelphia, 55 miles distant. The Moravians founded the tn., whose inhab. are still mostly of that nationality. Silk, paint, and flour are its chief products, while it enjoys a certain notoriety for its schools. It is joined to S. B. by two bridges across the Lehigh, and to W. B. by Monocacy Creek. Of the three boroughs the pop. is 15,000.
3. Tn. of Grafton co., New Hampshire, U.S.A., on Ammonosuc R., 75 m. N.W. of Concord. A favourite summer resort of the White Mt. dist. having an elevation of 1450. dist., having an elevation of 1460 ft. Pop. (resident) 1300. 4. Tn. of Orange Free State, S. Africa, 125 m. N.E. of Bloemfontein, in an argic. region, with an excellent climate. White pop. 1500.

Bethlehem Hospital, see BEDLAM. Bethlehemites, the name of various societies following: 1. An order of monks of England who lived in the 13th century, and who founded a monastery at Cambridge, 1257. 2. A military order founded by Pope Pius II. to prevent an attack from the Turks in 1459. 3. A society of Guatemals founded in 1650 and returns. mala founded in 1659 and patronised by Pope Innocent XI. in 1687. Bethlehem Church in Prague gave the name also to its followers who were led by John Huss.

Bethlen-Gabor, a member of an anct. Hungarian Protestant family. He was born in 1580 and distinguished himself during unrest in Transyl-He was later the chosen vania. prince on the death of Gabriel Bathori in 1613. In 1619 he led the Bohemians against the Austrians in defending their rights. His victories led to his proclamation as King of Hungary in 1621. Varying fortunes, which finally resulted favourably to him, ended in a peace with Ferdinand II. of Austria. Gabor relinquished the title of King of Hungary, though he gained large acquisition of ter. and the title of Prince of the Empire. The breaking by Ferdinand of the treaty saw Gabor's invasion with 60,000 men and consequent renewal of the violated conditions. In 1629 he died. Besides the high standard of military skill attained, he aided and endowed science and art.

Bethmann-Hollweg, Dr. Theobald

Bethnal Green, suburb in the E. of London, and a parl. bor. since 1885. A large portion of its pop. consisted formerly of silk-weavers from the Huguenot settlement, Spitalfields. In 1872 Queen Victoria opened a branch of the S. Kensington Museum Now the principal occupations are matchbox-making, boot-making, and cabinet-making. Pop. (1901) 129.680.

Bethphage, associated with Bethany in the N.T., was a vil. near the Mt. of Olives, on the road from Jerusalem to

Jericho.

Bethsaida, a vil. on the W. shore of Lake Galilee. It was the bp. of Peter, Andrew, and Philip. Nothing now remains save a pile of grasscovered ruins. Another B. is situated at the E. extremity of the lake. It was named Julius by Philip the Tetrarch, after a daughter of Emperor Augustus.

Beth-shemesh: 1. Anct. city of Palestine, probably the modern Ain Shems, a vil. 15 m. S.W. of Jerusalem. Frequently mentioned in the O.T. as a city of N. Judah, between Kirjathjearim and Timnah, originally a Levite jearm and Timman, originally a Levite city and later the chief city of Dan. Jehoash, King of Israel, captured Amaziah, King of Judah, here. See Josh. xxi. 16, and 2 Kings xiv. 11, 2. City of Naphtali, Upper Galilee. See Josh. xix. 38. 3. City of Issachar. See Josh. xix. 22. 4. Temple of On, Lower Egypt. See Jer. xliii. 13.

Bethulie, a tn. of Orange Free State, S. Africa, near Orange R., 39 m. S.W. of Bloemfontein. There are coal

of Bloemfontein. There are coal mines near. Pop. 1700.

Bethune, a Fr. tn. in the dept. of Pas-de-Calais. It is situated on a rock facing the R. Brette. It owes its importance to the manuf. of soap and beet sugar, and a trade in bleaching. Till 1713 the tn. was of Flemish occupation. From here the Scottish family of B. is said to have come to England accompanying William of Normandy. Its pop. was 12,601 in 1906. Bethune, Edward Cecil (b. 1855).

a British soldier. He entered a Highland regiment in 1875, became a major in 1895, a colonel in 1901, and attained the rank of major-general inWar, 1873-80, and in the Boer Wars of 1881 and 1899-1902; for the last-named war in S. Africa he raised and commanded 'Bethune's Horse,' Ho was created C.B. in 1905, and C.V.O. in 1909.

Bethylus, in entomology, is a genus of small hymenopterous insects of the The species family Proctotrypide. are four-winged flies remarkable for their large depressed heads, and somewhat resemble ants in appearance. They are found chiefly in dry

and sandy situations.

Bethylus, in ornithology, is a genus estab. by Cuvier and placed among the Laniidæ, butcher-birds or shrikes. The species described by him is a native of Guiana and Brazil, and is parti-coloured, black and white, like the common magpie.

Betony, Stachys betonica, is a common British plant belonging to the Labiatæ order. It is found in damp shady places, in hedgerows, woods, etc. The leaves are long, with toothed edges, and the blossoms, which appear in July and August, are of a purple colour. It was in ancient times regarded as a herb of great medicinal value. It can be great medicinal value.

used to extract a kind of yellow dye.

Betrothment (A.-S. treowth, truth) is giving one's troth, used invariably now as pledging oneself to marry. It was anciently a much more formal ceremony than it is to-day, having most of the binding force of a marriage. Roman law (sponsalia) imposed the duty on betrothed persons to become husband and wife in reasonable time, except where death intervened. The custom was practically abolished in the Christian church by the Council of Trent, be-cause it so frequently led to clandestine marriages; but subsequently Bs. became common again on the Continent. Since a betrothal is a legal contract, it is valid only between parties whose capacity is recognised by law, as for instance, the persons must be of age. Betrothals induce a strict obligation to marry, and should strict obligation to marry, and should either party eventually refuse, the other may obtain damages in an action of breach of promise. Betrothal as a term of art in English law has fallen into disuse, it being rather the mere promise to marry than any formal betrothal that gives wine te the legal obligation. On the rise to the legal obligation. On the Continent betrothals are of greater significance, and in Germany are publicly announced.

Betsileo, a negro tribe inhabiting

of Central houses of are built

He has served in the Afghan concentric fosses. They were subjugated by the Hovas early in the 19th century. They are good agriculturists, and number about 300,000. Their main town is ...

Bettelheim,

trian author, be there and at Munich; worked at journalism during 1881-6, and then took to biography and literary criti-His work includes Beaumarchais, an excellent biography, 1886; Lives of Anzengruber, 1891, and Marie von Ebner-Eschenbach, 1900, the former being included in the biographical series; Führende Geister, which he began to edit in 1890; and collected essays under the titles Dic Zukunft unsers Volkstheaters, 1892; Deutsche u. Francosen, 1895, and Acta Diurna, 1899. He has also ed. Deutsche Geisteshelden, 1895, and Biographisches Jahrbuch, begun in 1896.

Betterment, a term used to describe the additional value a tenant has caused his landlord's land to possess. It is often the case that, through the exertions of a tenant, the owner of the land reaps the benefit from labour expended by persons not responsible to him. Hence it resembles 'un-earned increment,' and politicians, both professional and amateur, are devoting their attention to the levy of a tax that shall compensate the actual worker before the owner of the land. Naturally a great amount of controversy is raised by the various pro-posals put forward. The solution of posals put forward. The solution of the whole problem lies upon a more intelligent adjustment of land values.

Betterton, Thomas (1635-1710), an Eng. tragedian, was the son of an under-cook in Charles I,'s household. After the Restoration he served the Duke of York's company, and acted so well that the king sent him to Paris to study stage scenery. Cibber culogises in very flattering terms his representation of Othello, Hamlet, and other Shakespearian characters. It was thought that he was indebted to his imitation of the great actors he had seen as a youth for the excellence of his acting. Having fallen on evil days, he was given a benefit, when he took the part of Valentine in Congreve's Love for Love.

Bettia, a tn. in British India in Bengal. It consists of ten different

dists., the soil of which is used for the

cultivation of indigo.

Bettinelli, Saverio (1718-1808), a distinguished It. writer, after being educated at a Jesuit college, became a member of that society. was in succession professor of literature in Brescia, and of rhetoric in Venice, rector of the royal college of on hill-tops and surrounded by sev. Parma, and lecturer on eloquence at

to instigate. The origin of the custom is not exactly known, but it dates back to the very earliest days, especi-ally in Eastern countries. By far the largest part of B. in England takes who make a profession of taking bets are known as bookmakers. Up to the these existed, as such, but the first and business-like manner was William Ogden in 1793, who can be called the first proper bookmaker. B. is illegal except at properly authorised race meetings, and then it must be in Tattersall's Ring. The B. is of two kinds: post B., when the wagering begins when the numbers of the horses are hoisted on to the board just before the race, and ante-post B., when the wagering takes place weeks before the event. Bets on all big races, such as the Derby, the Oaks, the St. Leger, the Cambridgeshire, or the Cesarewitch, often takes place nearly a year previous to the race meeting. Bets are quoted in most newspapers, and as the public take them up so the prices are regulated. Many papers, however, are against this publication on moral grounds, and to keep undesirables from public libraries a good many of these institutions make a point of blacking out all the B. news before the papers are put on view. The

Modena. On the suppression of his Eng. B. laws have no power. The order in 1773, he wandered from city Betting Acts of 1853 and 1874 were to city. His chief work is the Risorgi-made to prevent bookmakers having mento d'Italie, wherein he traces the too much power, while the Gaming progress of science and art in his Act and the Anti-Gambling League country, whilst his tragedy of Xerxes are also instrumental in keeping added considerably to his renown.

Betting, the act of stuking money somewhat in check. The Betting on the result of some future event, Acts above mentioned enforce that Betting, the act of staking money, acts above mentioned emote the usually of a sporting nature, but not 'no house, office, room, or other place' necessarily so. The word is supposed shall be resorted to for the purpose of necessarily so the Old Fr. abder, B. The word 'place' has been held belonging to a bookmaker at a race meeting who is outside Tattersall's Ring. B. debts cannot be recovered in a court of law, and this is a very place over horse-racing, and the men sharp thorn in the side of the bookmaker, for a debtor, should he like to be unfair enough, has but to plead the early part of the 19th century none of | Gaming Act to free himself from all responsibilities of such debts. Welshman to take bets in a really scientific ing is the term given to the practice which some smaller bookmakers adopt of disappearing with the stake-money before a race, or should they see that the result is likely to be against them. The laws on street B. are very severe, especially upon those making books with persons under the age of sixteen. For the first offence any one taking bets in a public place is fined £10; for the second offence, £20; and for the third offence, £50 or six months, and so on, according to the number of convictions. Among some of the famous bets that have taken place during the last hundred years may be mentioned that of Lord George Bentinck, who won £20,000 when Crucifix won the Oaks in 1840, and three years later the same nobleman stood to win £150,000 if his horse Gaper had won the Derby; the horse lost, but Lord George won £30,000 on another horse. Ridsdale John Gully and £100,000 over the Derby and the St. Leger in 1832, and Sir Joseph Hawley theory of B. is simple, but in practice won £80,000 when Beadsman won the it is more complicated. The book-former race in 1858. Lord Glasgow maker will make a book for a certain once laid £90,000 to £30,000 with maker will make a book for a certain once laid £90,000 to £30,000 with amount, say fifty, a hundred, or a Lord George Bentinck. Capt. Machell thousand pounds, and his endeavour gained over £60,000 when Hermit is to lay an equal amount of his book against every horse in the race. The race the notorious plunger, the Marodds, of course, change with the current quotations of each horse. For sum of £103,000. Such reckless B., those who would wish to know in however, is not carried on nowadays. more detail of the exact methods of B. In France B. is carried on in quite a (for we must in an article of this different fashion to the method in (for we must in an article of this different fashion to the method in length but deal broadly with the sub-vogue in England. The system in use ject) can find what they want in in the former country being an appara-Tattersall's Rules on Betting and tus known as the 'pari-mutuel.' It is Rowntree's Betting and Gambling. Bookmakers who wish to carry on each horse, into which the stakes are their business otherwise than at race placed, the better obtains a voucher meetings, call themselves 'commistion agents,' and profess only to take exhibited after the race. The Fr. money on behalf of others. Some have offices abroad, notably at Flushmore offices abroad, notably at Flushmore offices abroad, notably at Flushmore from this source, they deing in Holland, where, of course, the duct a certain percentage from the

stake-money, and another percentage; these places the small state of Monaco is also set aside for the poor before the (Monte Carlo) is the only European money is divided up amongst the winners. This system was introduced into France in 1865, and a few years later into England, where, however, it did not find favour, and was soon abolished and declared illegal as being a gaming machine. The system is still sometimes used in the colonies, where it is known as the 'totalizator.' In Japan, however, it was declared illegal in 1908.

Wagers are a form of B. not usually associated with the raceusually associated with the race-course, but are a hazard on any event, sporting or otherwise, sometimes on things of an absurd nature. Lotteries, still another method of B., take the form of taking tickets for small or large amounts on the chance of winning big sums of money. The carliest lottery properly established was one in Florence in 1530, and in 1571 a special voltaire's Zaire in Eng. Spontaneous of School was appointed in Venice to specess led to a journey to Dublin. official was appointed in Venice to supervise these affairs. From Italy the lottery passed into France and gradually spread over Europe. first one known in England was at the end of the 17th century. Lotteries are now illegal in England, however, although they still flourish on the Continent, where they are sometimes run by the states, in fact Austria, Denmark, and Prussia have raised loans by this means. In America, as in England, they are now forbidden The gaming-table is also a popular form of B.; this is now also illegal in England, though in 1620 they were licensed in London and were very popular all through the 18th century, fortunes being staked and lost frequently, but in the early part of last century the games of faro, hazard, or roulette, were prohibited, and the custom has gradually died out, although many secret gambling dens still exist in the West End of London. Monte Carlo is, of course, the great place for gaming tables, and at a good many of the health resorts on the Continent the practice is still very much in vogue, but only quite small sums are allowed to be staked at one time, generally not exceeding 5 frs. Ostend has a large kursaal with many tables, and although officially abolished in France in 1838, gaming tables for the small amounts alluded to above are still to be found at places like Dieppe and Boulogne. Before the formation of

and Homburg in the Hesse-Homburg landgrayate, were at one time two of the most famous resorts in Europe of Since the suppression of gamblers.

resort for legal gambling.

Bettws-y-coed, an urban district of Carnaryonshire, situated 4 m. from Llanrwst and 16 from Llandudno. Its pop. in 1901 was 1070. Its name signifies 'house of prayer (from Old English bede-house) of the wood. The sev. Bettws in Wales make the y-coed necessary for purposes of distinction. Artists and tourists are attracted to the spot. Fishing for trout and salmon yields large results. Among its waterfalls the best known

success led to a journey to Dublin. While here he is said to have rememorised the part of Hamlet in three hours. Favourable comparison with past great masters of tragedy followed his achievements. The House of Commons was adjourned by Pitt one night to allow members to attend a performance where he was appearing. His last appearance was made in 1808, for public entitusiasm died away. After an education at Christ's College, Cambridge, he retired to the enjoyment of a large fortune he had acquired by his extraordinarily precocious abilities.

Betul, or Baitul: 1. Dist. of Central roys., British India. Mountainous, with large forests and some coal mines. Cap. Badnur. Area 3826 sq. m.; pop. 285,000. 2. Tn. of above dist., 112 m. N.W. of Nagpur. Pop. about 5000.

Betula is the generic name of the birch, and gives its name to the natural order Betulacere. There are about thirty-five species of this tree, growing in northern lands, the best-known European variety being B. alba, the common birch, found at the northern tree-limit. B. pendula is the weeping birch; B. papyracca of N. America is the paper or canoe birch used in making canoes. Sce BIRCH.

Betulaceæ, an order of dicotyledonous trees or shrubs found largely in N. lands. It comprises six genera, of which typical plants are the birch, alder, hornbeam, and hazel-nut. The male and female flowers grow in catkins on the same plant, and may have perianth-leaves. The stamens vary in number from two to ten, there are two united carpels, while the fruit is a one-seeded nut.

Betuwe, a dist. of Holland, situ-

ated between the Waal R. and the Rhine R., in the prov. of Gelderland. It is very fertile.

Betwa, a riv. in India, rising in Bhopal in Malun. It joins the Junna after a course of 360 m. A canal 168 m. long is fed by it for

ririgation purposes in the Jalaun dist.
Betzdorf, a tn. of Rhine Provs.,
Prussia, 45 m. S.E. of Cologne. Has
iron and machine works. Pop. 4800.
Beulé, Charles Ernst (1826-74), a

Fr. archæologist and politician, born at Saumur. He became professor of archæology at Athens, where he discovered the propylea of the Acropolis. On his return to Paris, he was appointed to the professorship of archæolical control of the professor of the professor of archæolical control of the professor of the ology at the Bibliothèque Nationale, 1854; in 1858-9 he made excavations on the site of Carthage. In 1871 he was elected, as an Orleanist, to the National Assembly, and was Minister of the Interior under MacMahon, His publications were numerous and include: L'Acropoled'Athènes, 2 vols. 1854; Eludes sur le Pelopon-nèse, 1855; Les Monnaics d'Athènes, 1858; Phidias, Drame Antique, 1863; and Histoire, de l'Art gree and Histoire de l'Art gree avant Périclès, 1868. Consult Ideville, Beulé, Souvenirs Person-Monsicur nels, 1874.

Beust, Friedrich Ferdinand von (1809-86), Austrian count and statesman. He was descended from a distinguished and noble family who had been connected with the Mark of Brandenberg, He was born at Dresden. Educated at Leipzig and Göttingen, he entered the public service of Saxony, In 1836 he became secretary to the legation at Berlin. His later appointments led him to London, Paris, and Munich. An outbreak of revolution in 1848 prevented his projected appointment as war minister. In the following year, however, he was appointed minister for foreign affairs. An outbreak of revolution caused by the king's refusal to accept the Frankfort constitution, was quelled, and B. had to restore order. His vigorous methods at suppression earned him bitter animosity and consequently, to a certain degree, unjustifiable slander. He speedily became one of Germany's most prominent figures. Conflict with Bismarck followed later, and though the war of 1860 was directly caused by Bismarck, B. was blamed for it. A friendship, however, with Bismarck was formed later, but shortly after, and with no hitherto explained reason, B. was dismissed from office. He died in retirement in 1886, having proved himself the possessor of rare qualities as a statesman, spoiled perhaps by that rarely

conquered weakness vanity.

Beuthen: 1. A tn. of Germany in the N. of Prussian Silesia, situated on the Oder. Its pop. (1900) was 3164. The prin. industries are straw-plaiting, boat-building, and pottery. It is known also as Niederbeuthen. 2. A tn. of Germany in the S.E. of Prussian Silesia. Its pop. in 1900 was 60,078. It is a mining centre for iron and zinc.

Beuvry, a tn. of Pas-de-Calais dept., France, 3 m. S.E. of Bethune; pop.

(commune) 4800.

Beuzee-Cong, tn. of Finistère dept., France, 12 m. S.E. of Quimper; pop. (commune) 5000.

Beuzville, a tn. of France, situated in the dept. of Eure, and 7 m. S.E. Also a from Honfleur. Pop. 2000. French vil. situated in the dept. of Seine, Inférieure arron., 16 m. N.E. by E. from Havre. Pop. 2000.

Bevagna, tn. of Umbria, Italy, 18 m. S.E. of Perugia. Has a trade in wine.

Pop. (town) 2000, (commune) 6000.

Beveland, North and South, two is, in the Scholdt estuary, Holland. They are of the Zeeland Is., of which group S. B. is the largest and most fertile. It has a pop. of 23,000. N. B. is a low marshy tract.

Beveren, a tn. of Belgium, situated in E. Flanders. A large proportion of its inhab, are employed in the manuf.

of point lace. It contains a famous church. Its pop. is 8637.

Beveridge, William (1637-1708), Bishop of St. Asaph, studied the classical and semitic languages as sizar of St. John's College, Cambridge. In 1661, having obtained his M.A. degree, he was ordained deacon and priest. Before finally accepting his bishopric he refused those of Wells and Bath. Piety and devotion dis tinguished him through all his preferments. In 1824 nine vols. of his sermons and other writings were pub., but none save the curious read any book of his except Private Thoughts upon Religion, published in 1709.

Beverivijk, a commune and prov. of N. Holland, 7 m. by rail from Haerlem; pop. 5500.

Beverland, Adrian, a Dutch scholar who aroused great comment among his unorthodox n at Middelburg,

He studied law

visited Oxford University, and settled in Holland as an attorney. pamphlet, Peccatum Originale, was produced in 1678, and was burned publicly, while its author suffered both imprisonment and expulsion from Utrecht and Leyden. He subsequently returned to the Hague, and wrote De Stolatæ Virginitatis Jure in 1680. This work caused a greater storm of obloquy than even his previous writing. Lack of support drove him

to England, where he found an enthusiast in Isaac Vossius. Later he be-came mentally deranged, and his death took place not long afterwards in 1712.

Beverley, a tn. in the E. Riding Yorkshire. It is connected with the R. Hull by a canal. It is 8 m. N.N.W. of Hull city. Corn and coal are its chief articles of trade, while tanning and the manuf. of agricultural tools are the chief industries. town possesses a magnificent Gothic minster of the Collegiate Church of St. John. For architectural beauty it compares with York Minster itself. There is also a grammar school whose foundation is of such antiquity that its exact date is unknown. The name is a development of Beverlac, meaning 'lake of the beavers.' In 1901 its pop. was 13,183.

Beverley, John de (d. 721), an Eng. ecclesiastic, born at Harpham in Yorkshire, was for thirty-three years Archbishop of York, and was tutor to the Venerable Bede. He founded a college at Beverley for secular priests. After his death he was honoured as a saint, and William the Conqueror ordered that the town of Beverley should be spared when he ravaged the whole of Yorkshire. Among B.'s Among B,'s

works are Pro Luca addressed to Bede, a Gospel of St. Luke, and

the Carmelite monk; he was doctor

trum |

dinariæ.

Beverloo, a small tn. of Belgium, situated in the prov. of Limbourg, and 12 m. N.W. from Hasselt.

Beverly, a tn. of Massachusetts, U.S.A. It is situated on an inlet of the Atlantic opposite Salem. By rail it is 18 m. N.E. of Boston. Its importance is due to the virtues of its harbour, its fisheries, and a large manuf. of shoes. Its pop. in 1906

was 15,491.

Bevis of Hampton is the principal character of an English medieval romance which was very popular. His father was Sir Guy, Earl of Ham-toun. On the murder of his father by the Emperor Divoun of Almayne, his false mother sold him to heathen merchants as a slave. Thus he merchants as a slave. Thus he journeyed to Ermony where he won the affection of the King Ermyn and the love of his beautiful daughter, Josiau. The conquest of Brandemond of Damascus, the slaying of a ferocious boar, and of a fearsome dragon, and the overthrow of a giant named Ascapart, whose life he spared, are Similde Hegerell, 1904, and Deramong his numerous achievements. Grossknecht, 1905; Zapfenstreich has among his numerous achievements. Grossknecht, 1905; Zapfenstreich hi Hepossessedacelebratedsword called been translated into Eng. as Taps.

| Morglay. His final coup was the slaughter of some 60,000 citizens of London and the forcing of King Edgar to grant terms. His death after thirty years of domestic felicity took place at the same time as that of his wife and his horse, Arundel. Kölbing edited the romance for the Early English Text Society in 1885.

Bewcastle, a vil. of Cumberland, 10 m. N.E. of Brampton. In the church-yard is an anct. stone headless cross, 14 ft. high, bearing a runic inscription probably dating from the 7th century.

Pop. 800.

Bewdley, bor. of Worcestershire, on Severn, 14 m. N.N.W. of Worcester. It has manufs. of leather, combs, brass and iron ware, malt, bricks, and The tn. is an ancient one, and its prosperity dates from the 15th century. Pop. (1901) 2866.

Bewick, Thomas (1753-1828), famous Eng. wood-engraver, was the son of the lessee of a small colliery. Showing small aptitude for learning, but decided talent for art, he was apprenticed, in 1767, to Ralph Bellby, a Newcastle engraver, with whom he afterwards entered into partnership. Having pub. many woodcuts in his Select Fables, he estab. his reputation as a dexterous, accurate engraver by "" and tail-pieces of his

which appeared in 1790.

humour, however, are most conspicuous in his History of British Birds, the value of which the value of the constitution of the value of Birds, the value of which is further enhanced by his practical knowledge of their habits. This book is universally regarded as his masterpiece.

Bex, a vil. of Vaud, on the Rhone, 26 m.

has salt mines in the vicinity. tn. is also noted for its sulphur-baths.

un. 18 also noted for its sulphur-naths, which make it a common resort for invalids. Pop. (1900) 4600.

Bexhill, a holiday resort, 5½ m. W. by S. of Hastings, on the coast of Sussex, England. It is on the L.B. and S.C. Railway. Pop. over 12,000.

Bexley, a tn. on the Cray, in Kent, England, 5 m. S.E. of Woolwich; non 13,000.

рор. 13,000.

Bey, sec BEG.

Beyerlein, Franz Adam (b. 1871), Ger, novelist and dramatist, born at Meissen; educated at Freiburg and Leipzig. In 1903 he wrote the play Zapfenstreich and the novel oder Sedan, both dealing with military life, which created considerable sensation. His other plays include Damon Olhello, a tragedy, 1895, and Das Siegesfest, 1896; and among his other novels are Das grane Leben, 1902;

Beyle, Marie Henri (1783-1842), works include Beiträge zur Kenntnis better known by his pen-name of der Versteinerungen des rheinischen Stendhal, was born at Grenoble, and Uebergangs gebirges, 1837; Unterwas in turn soldier, shopman, and diplomatist. After some years spent in the commissariat, he accompanied Napoleon on the Russian campaign, and carned some reputation in the from Moscow. disastrous retreat After the fall of Napoleon, he refused to continue in his position, and took up his residence in Milan. In 1821 he was compelled to leave this city, and returned to Paris, where he soon became known in literary circles. In 1830 he was appointed consul at Trieste and then at Civita Vecchia. and in this post he continued till his death at Paris in 1842. His works are numerous, chiefly falling into the divisions of critical works and novels. Of the first div. are: Histoire de la peinture en Italie, 1817; Rome, Naples, et Florence, 1817; Racine et Shalespeare, 1823, 1825; Promenades dans Rome, 1829. Hischief novels are: Armance, 1827; le Rouge et le Noir, 1821. 1831: la Charlreuse de Parme, 1839. Amongst a variety of miscellaneous Amongst a variety of misculantous works the following are interesting: Essai sur l'Amour, 1822; Mémoires d'un touriste, 1838; Correspondance, 1855; Journal de Stendhal, 1888; l'ie de Henri Brâlard, 1890; Souvenirs d'égotisme, 1892; and Souvenirs d'égotisme, 1892; and Lettres à sa sœur, 1892, all pub. posthumously, are interesting on account of their autobiographical Stendhal's chief characnature. teristic is his supreme egotism, which considerably restricts his expression. He had, however, the gift of psychological analysis, and it is for this, rather than for continuity and arrangement of plot, that his novels are valuable. He was one of the 'idéologues' of the 18th century, and has been hailed as a precursor of Romanticism and Realism. His originality is carried to such an extent that it becomes artificial, and he often seeks after it to an exorbitant degree. See A. Paton's Henri Beyle, 1874; and E. Rod's Stendhal, 1892.

Beypur, scaport of India, Malabar dist. of Madras, near mouth of Bey-pur R. It is on the railway from Madras across India. Some iron and coal are found in the vicinity. Pop. 6730.

Beyra, see BEIRA.

Beyrich, Heinrich Ernst (1815-96), German geologist and paleontologist, born at Berlin. In 1856 he became professor of geology and palæontology at Berlin University, and in 1873 director

der Versieinerungen des mein Uebergangs gebirges, 1837; U suchungen über Trilobiten, 2 1846; Konchylien des Norddeutschen Tertiärgebirges, 1853-7; Ueber einige Cephalopoden aus dem Muschelkalk der Alpen, 1867.

Beyrout, see BEIRUT.
Bewahlan, Williams (1999 1000) Ger.

born

studying divinity at Bonn and Berlin, he was appointed professor of theology at Halle in 1860, which post he occu-His numerous pied till his death. works include: Die Christologie des Neuen Testaments, 1866; Leben Jesu, 2 vols. 1885, 3rd ed. 1893; Neutes-tamentliche Theologie, 2 vols. 1891-2; Christenlehre auf Grund des kleinen Lutheranischen Catechismus, 1900; Der Altkatholicismus, 3rd ed. 1883; and an autobiography, Aus meinem

Leben, 1896-8.

Beza, or de Beze, Theodore (1519-1605), one of the most influential and active of the foreign reformers, was born at Vezelay in Burgundy. He studied at Orleans under the learned Melchior Volmar, who both taught him Greek and also inspired him with his first leanings towards Protestantism. He studied law for some time, but gave himself largely to polite society and literature, these two influences producing his *Poëmata juvenilia*, a volume of loose verse published 1648, the thought of which later gave him great pain. In 1548 he had a severe illness, which brought about his conversion. He had already given up the idea of taking orders in the Roman Church, and now, after marrying his mistress, Claudine Denosse, he joined Calvin at Geneva. and became professor of Greek at Lausanne. In 1550 he published a drama on The Sacrifice of Abraham, and began a series of lectures on parts of the N.T., which ultimately led him to translate the whole of it into Latin. In 1559 he returned to Geneva, where he was professor of theology with Calvin. In 1561 he represented the Protestants at the Conference of Poissy, returning to Geneva in 1563. Next year Calvin died, and B. was called on to take his place as head of the reformed churches of France and Geneva. In 1571 he presided over the synod of La Rochelle. His best known works are an edition of the Greek Testament, De Hæreticis a Berlin University, and in 1873 director doubtful Histoire ecclésiastique des of the geological dept. He was Eglises réformées au royaume de associate director of the Prussian France. Beza's Codex, the Codex Geological Survey and superintended Bezæ, or Codex D, is a Greek MS. of the production of the geological chart the N.T. in uncial characters, dating of Prussia and Thuringia. His pub. from about the 6th century. B. presented It to the university of Cam- | knave, nine, eight, seven. The game bridge in 1581, with a rather untrustworthy account of its history. See Lives by Schlosser (1806), Baum (1851), Heppe (1861), Baird (1899).

Bezant, or Byzantine, was the name of a coin of the Byzantine empire. They were made in gold and silver; the value of the gold B. varied from ten shillings to a sovereign, that of the silver B. from one to two shillings. They were not made in the same impression as earlier Roman coins, and in several citles where the Byzantine standard was adopted they were Owing to the commercial copied. relations which the Byzantine empire then had they were distributed over the whole surface of the known world. They were in use in England and India until the reign of Edward III. The fact of their being brought home by crusaders led to their use in heraldry, English for which BEZANT (heraldry).

Bezant, in heraldry, belongs to the group of roundels or pellets, discs or balls of different colours. The name B. is generally confined to the golden roundel, though occasionally the silver roundel is included. In olden times it was considered that the B. and the silver roundel, as representing coins, should be drawn as a flat surface, the other roundels being drawn as balls. The arms of Beulay of Wharfedale were 'gules a bezant.' For further particulars see under

HERALDRY.

Bezdan, a tn. of Hungary, co. of Bacs-Bodrog, on a canal joining the Danube and the Theiss, very near the

former river. Pop. 8400.

Beziers, cap. of an arron. in the dept. of Hérault, on R. Orb and Canal du Midi, is beautifully situated on the slope of a hill. It contains interestarchitectural monuments, which the chief is the early Gothic cathedral, rebuilt in the 14th century. The town also possesses remains of Rom. occupation in the ruins of an aqueduct and an amphitheatre. 1209 the town, which was a centre of the Albigenses, was visited by Simon de Montfort and the inhabitants were put to the sword. In later times it was a centre of the Huguenots. manufs. silk and woollen goods, brandy, wines, chemicals. etc. Pop., the growth of which has been rapid of late years (1900), 4900

Bézique (corruption of Fr. bésique, origin uncertain), a game at cards which, under varying rules, may be which, under varying rules, may be played by two, three, or four persons, the number of packs being the same as the number of players. All cards as the number of players. below seven are taken out of the packs, and the cards remaining rank immediately after he has won, before in the order of acc, ten, king, queen, drawing from the stock. Two declara-

is generally played by two persons. When the lower cards have been removed, the two packs are shuffled together so as to form one. The dealer then deals eight cards to each player, dealing three, two, three, and the cards that remain are laid on the table between the players, forming the 'stock.' Trumps are fixed either by turning up the top card of the stock or by the suit of the first marriage or sequence (see below) which occurs during the game. The non-dealer then plays the first card, and the second player is not compelled either to win the trick (which he can do by trumping or by playing a higher card of the same suit) or to follow suit. Unless he has something to declare, he will probably avoid win-ning the trick. After each trick, each player takes a card from the stock and places it in his hand, the winner taking the top card. This continues until only two cards remain in the stock. The trick that follows is called the 'last trick,' and after the stock is exhausted the last eight tricks are played under different rules. before explaining these, the system of scoring and the rules for declaration must be given. It has been seen that the aim in B. is not to gain tricks. It is (1) to secure certain combina-tions of cards in the hand, which, when declared, add to the score; (2) to gain in play brisques, i.e. as many aces and tens as possible; (3) to win the 'last trick,' which, as explained above, is not the last trick of the game. Scores are gained as follows: Marriage (king and queen of any suit), 20; Hoyad Marriage (king and queen of trumps), 40; Sequence (ace, ten, king, queen, and knave of trumps), 250; B. (queen of spades and knave of diamonds), 40; Double B. (all the B. cards), 500; four aces (of any suits, whether duplicates or not), 100; four knaves, 40. These are all gained by declaration. Winwhen declared, add to the score; are all gained by declaration. Winning of last trick, 10. In addition to this, if the dealer turns up the seven when turning up for trumps, he counts 10. If the seven of trumps is in the hand, the player may either exchange it for the card turned up, or declare it and count 10. Lastly, at the end of play, each player counts up the number of aces and tens in the tricks he has won, and registers 10 for each. A declaration is made by placing

the cards the table ınd nly. played from be done by the winner of a trick, immediately after he has won, before tions may be made at the same time, if the cards of the second declaration do not include any of those used in the first. They cannot, however, be scored at the same time. One declaration is scored, and the other must wait until another trick has been won. In making declarations at least one card must be used which has not already been declared in any combination, while the rest may have formed part of previous ones. For example, a marriage having been declared and another trick won (for, as said above, two declarations can be made at the same time only if the cards of the two are distinct), three other kings may be laid down, and 80 scored for the four kings. But if four kings have been declared at one time and four queens also, it is impossible to combine one of these four kings with one of the four queeus to gain a marriage. To gain all the scores possible on these cards, one set of four should be first declared, then the marriage or marriages, and lastly the other four. Of course, if the four queens exactly coincide in suit with the four kings, only three marriages should be scored, the last 20 being sacrificed for the sake of the 40 gained by the set of four queens. The winner of the 'last trick' may declare anything he has undeclared, but after this no more declarations may be made. Hence the additional importance of the last trick. When the last cards of the stock have been taken, all cards on the table are taken up. (The winner of the last trick takes the last card of the stock, while the loser takes the turned-up card.) After this the winner leads, and now the second player must always follow suit and win the trick if he can do so. If he revokes, or loses the trick when he might have won it, the whole eight tricks go to his adver-The deal goes on alternately until one of the players has scored prising five dists, of which above is 1000. This closes the game. If the one. Area about 20,000 sq. m.; pop. loser has scored less than 500 points. the game counts double. Scores are generally kept on a special B. marker. Three and four-handed B. are played under almost the same rules. play against each other, and triple B. (counting 1500) may be scored. player may also gain a second double B. by combining a B. combination with two cards of a double B. he has already declared. In four-handed B. renders Arjuna, chief of the Pāndus, the players may form partners, declarations may be made after a win by either partner, and Bs. may be of his charioteer, and now recalls him from either hand. Other forms of the ameare Polish (or open) and Rubicon Bézique.

Bezoar, or Bezoar Stone, a con-

found in the stomach or intestines of ruminating animals, as goats, llamas, antelopes, cows, chamois, etc. The name is of Persian origin, and means 'antidote to poison,' the stones obtained from the Persian wild goats being at one time much esteemed in that connection. They appear to be formed through the presence of some irritating substance in the alimentary tract, and in the Persian goat are composed of ellagic acid. The Oriental Property of the control of the contro tal B. is found in the intestines of the gazelle and other animals, and is sometimes used as a form of incense, the substance burning with a resinous odour. Balls of hair are found in the intestines of British cattle, but these have little or no superposed accretion. The term is sometimes applied to the fossilised dung of extinct animals found in the Lias beds of Gloucestershire.

Bezold, Wilhelm von (1837-1907), Ger. meteorologist, born in Munich; educated there and at Göttingen; becamea professor at Munich University in 1866 and later in the Technical Institute of that city. In 1885 he was appointed professor of meteorology at Berlin and also director of the New Meteorological Institute. He has pub. sev. valuable works on meteorology and thermodynamics.

Bezwada, a tn. in Madras, British India, on the l. b. of the Kistna, 44 m. N.W. of Masulipatam, a rapid growing centre for riv., canal, and railway traffic. Pop. over 21,000.

Bhagalpur: 1. City of British India in Behar prov. of Bengal, in dist. of same name, on r. b. of Ganges, 265 m. by rail from Calcutta. Pop. (1901) 75,760. 2. A dist. in prov. of B., divided into two nearly equal divs. by the Ganges. Lowlands are fertile and well cultivated. The chief manuf. is indigo, and rice and other cereals are well cultivated. Area 4226 sq. m.; pop. (1901) 2,088,953. 3. Div., comabout 8,720,000.

Bhagavad-Gita ('The Song of the Blessed'), a famous religious and philosophical poem of India which is inserted as an episode in the sixth book of the Mahabharata. It begins with describing the state of war between the two tribes of the Pandus and the Kurus. The two tribes are closely united in blood, and this work of a warrior. As the instruction continues it becomes more and more elevated and mystical, until at cretion or hardened mass occasionally last Krishna reveals himself as the Supreme Lord of creation. The work 35 m. W. of Agra by rail. Its in-is the greatest ethical product of mense mud-walls, still remaining, Indian philosophy, but there is much confusion of elements caused by the work has

and monowith high ain aim of

y of mystic souls to the Yoga or absorption in the Deity, which is highest highest aim of " recension of 3 of the influence of Buddhist and possibly even of Christian thought. The Song Celestial is a translation or paraphrase of the B. done into blank verse by Sir Edwin Arnold.

Bhagirathi: 1. One of the chief head-streams of the Ganges, rising on the western slopes of the Himalayas. It is regarded as sacred by the Hindus. 2. A branch of the Ganges which flows past Murshibad. Later it takes the name of Hoogli and forms one of

its principal outlets.

Bhainsror, a fort and tn. on the top of a high rock in Rajputana, Vdaipur, India. Famous for remains

of temples to Siva.

Bhamo, a tn. of Burmah, on Upper Irawadi, 40 m. W. of the Chinese frontier. It has lately become important on account of its position as a centre on the trade route to the Yunnan prov., to which an Anglo-Chinese convention in 1893 gave special trading rights to Britain. Its chief industry is the transit of goods. Pop. about 7000.

Bhandara, cap. of dist. of B. in Central Provs., British India, about 35 m. E. of Nagpur; pop. about

13,000.

Bhang, the native Indian name for the hemp plant, Cannabis indica, but generally applied to a narcotic drug formed from its dried leaves. It is used sometimes for smoking either alone or with tobacco, sometimes it is strained in water to produce an in-toxicating drink, sometimes it is used for chewing. It is in common use about the Indian races, and also among the Arabians In addition to the us effects, it produces

hallucinations, in the same way as

opium.

Bhanpura, a tn. of British India, prov. of Indore, on the Rewa; pop.

about 15,000.

Bhartpur, or Bhurtpoor, a state in Rajputana, British India, governed by a rajah under British protection. The surface is generally level and fertile, but the country suffers somewhat from lack of water, being traversed by only one river. Its rajah figured largely in the Indian Mutiny. The cap. of the state is the tn. of B.,

proved valuable on the two occasions when it was besieged during the Mutiny. Pop. (1901) 43,600. Pop. of state 630,000; area 1975 sq. m. Bhartrihari, the name of a cele-

brated Indian poet who is supposed to have lived during the 1st century The best known work attri-B.C. buted to him is a collection of apothegms, arranged in three centuries or groups of a hundred. It is probable that they are the work of various hands, attributed in general way to a well-known author. The first century deals with love, the second with ethics and morality, the third with asceticism, and devotion to the Divine Being. A critical ed. by Bohlen appeared at Berlin in 1833.

Bhatgaon, or Bhatgong, a tn. of Nepaul, 5 m. S.E. of Khatmandu. It is a favourite residence of the Brah-

mans. Pop. probably about 30,000. Bhatkal, a tn. in the S. of Bombay, British India, 80 m. N. by W. of Mangalore. Was a prosperous mart

from 1300-1600. Pop. 6000.

Bhau Daji, or Ramkrishna Vital (1822-74), Indian physician. A Sarasvat Gond Brahmin, born at Mandra, Goa; educated in Bombay, and became a teacher in the Elphinstone School; studied medicine at the Grant Medical College, 1845-50. He was a popular and successful practitioner, a member of numerous edu-cational and scientific societies in Bombay, a fellow of the University, a J.P., and a sheriff of Bombay. He did some valuable research work in connection with Indian drugs and the cure of leprosy.

Bhaunagar, or Bhavnagar, cap. of state of same name in Bombay, on Gulf of Cambay, 60 m. N.W. of Surat. It is an important port. Pop. 56,500. The state has an excellent administration, and its prosperity is now increasing somewhat. Area 2860 sq. m.:

pop. 420,000.

Bhayabhuti, an Indian dramatic poet who flourished at the beginning - Sth century of our era. He of an illustrious Brahman and is the author of three Sanskrit dramas which raise him to

the level of Kalidasa and Harsha. The three are the Maha-vira-charita, Utlara rama charita, and Malati-Mādhava, the story of the two first being drawn from the legend of All three have been trans. Rama. into English separately.

Bhavani-Kudal, a tn. of Madras Presidency, British India, on Bhavani and Cauvery rivs., 58 m. N.E. of Coimbatore, containing temples to Vishnu and Siva; pop. 10,000. Bhera, a tn. on the Ghelum, in the

pop. 17,500.

Bhils, an aboriginal, pre-Aryan people of Central India, found scattered over the hilly dists, there, but especially in the Khandesh dist, of Bombay and the Vindhya Hills. They were driven out of the fertile districts by the Aryan invaders, and henceforth led the wild, nomadic life of outlaws. An unsuccessful attempt having been made to subdue them, the Bhil corps was formed in 1825 to utilise their fighting instinct, and this corps secured some order in their dists. The Bhil is short, dark, active, and a great woodman; he is brave but superstitious. Civilisation is gradually getting some hold on the Bhils. They number about a million.

Bhilsa, a tn. of India, on the Betwa riv., 26 m. N.E. of Bhopal. It grows a coarse tobacco, in which it carries on some trade. To the S.E. of B. is Sauchi, remarkable for a famous group of Ruddhist topes, chief of which is the Great Tope. B. itself also possesses some of these buildings.

Bhima, a riv. of India, 398 m. long, rising in Bombay. After flowing through Haidarabad, it joins the

Kistna near Muktul.

Bhir, a tn. on Pandsura R., in Hai-

darabad, British India.

Bhiwani, a tn. in Hissar dist. of Punjab, 38 m. S.E. of Hissar by rail. Important commercial centre, with trade in salt, spices, and metal goods. It has grown considerably of late. Pop. 36,000.

Bhoipur, a tn. of Shahabad dist., Bengal, British India, 8 m. E. of Buxar; pop. 10,000.

Bhopal, a state of Central India, founded in 1723 by Dost Mohammed Khan. In 1818 a treaty of dependence was concluded between Britain and this state, which had always shown itself friendly. Since then it has been thoroughly loyal. It is crossed by the Vindhya Hills, and is hilly but generally fertile. The cap., also named B., 325 m. S.W. of Allahabad, has an important trade in opium. It is watered from two large artificial lakes in the dist. Pop. 17,000. Pop. of state 665,960; area 6900 square miles.

Bhor: 1. Feudatory state of Bom-

bay Presidency, British India; area 1491 sq. m.; pop. 140,000. 2. Cap. of above state, 30 m. S. of Poona;

pop. 4200.

Bhor Ghat, a pass across the Western Ghats, in Bombay, British India. The railway, built up it in 1863, communicates with S.E. India. Bhownagree, Sir Mancherjee Mer-

son of a Parsee merchant; educated ruins, it has a temple to Siva, and a

Punjab, British India; dist. Shahpur; at Elphinstone College and Bombay University; became sub-editor of the Statesman in 1871. In 1873 he became state agent in Bombay for the Bhau-nagar Maharaja, and in 1881 came to England to study law, being called to the bar in 1885. In 1886 he was created Companion of the Most Eminent Order of the Indian Empire. During 1887-91 he was engaged in assisting the Maharaja of Bhaunagar to establish various constitutional and judicial reforms. In 1895 he entered parliament as Conservative member for Bethnal Green. He was created K.C.I.E. in 1897. Author of History of the Constitution of the East India Company, 1871, and a Gujarati translation of Queen Victoria's Life in the Highlands.

Bhuj, cap. of the state of Cutch, British India. The tn. has a pretty appearance on account of its whitetopped mosques and pagodas. Pop.

26,000.

Bhurtpoor, see BHARTPUR. Bhusawal, a tn. in the dist.

Khandesh, in Bombay, British India, 115 m. S. of Indore; pop. over 13,500.

Bhutan, an independent state in the Eastern Himalayas, bounded on the N. by Tibet, on the E. by various unimportant independent mt. states, on the S. by Assam and Bengal, on the W. by the independent state of Sikkim. The surface is extremely Sikkim. varied, and B. presents a series of lofty, forest-clad mt. ranges, alternating with deep-cut valleys. Through these valleys swift rivers run in a southerly direction, ultimately joining the Brahmaputra. The chief of these are the Manas, the Machu, and Chinchu. The dist. has only lately been explored, and in 1904 an expedition was sent there which did valuable surveying much There are two supreme chiefs of the state, the Dharm rajah, head in spiritual matters, and the Deb rajah, head in temporal affairs. They are not hereditary rulers, and the rule practically rests with the council, known as the Lenehem. Rule, however, is very loose, and commerce is poor. The Bhutias are industrious, and very clever joiners, their agric, produce being their chief exports. Among these are the famous horses. mules, native cloth, salt, etc. Nominally the religion is Buddhism, but it generally amounts to little more than the propitiation of the evil spirits. The area of the state is estimated at about 15,000 sq. m., and the pop. at about 200,000. Chief this, are Tassisudon and Punakha.

municates with S.E. India.

Bhownagree, Sir Mancherjee Merof Puri dist., Bengal, British India,
wanjee (b. 1851), born in Bombay, the 16 m. S. of Cuttack. While largely in

trade in cloth and rice. Former cap. 1

of Resari dynasty of Orissa. Biafra, Bight of, a bay on the W. coast of Africa, on that part of the Gulf of Guinea lying between Cape Formosa on the N. and Cape Lopez on the S. It contains the is. of Fernando Po (Spanish), Prince's and St. Thomas (both Portuguese). flow various important rivers, the Niger, New Calabar, Old Calabar, Rio

del Rey, Cameroon, and Gaboon.
Biala: 1. City in Galicia, AustriaHungary, on the riv. B., 43 m. W.S.W. of Cracow. Has linen and woollen manufs. Pop. 9500. 2. Tn. in Russian Poland, in the gov. and 34 m. E.S.E. of Siedlee, on the main line between Warsaw and Moscow. Pop.

14,000.

Bialystok, a town of European Russia, in the gov. of Groduo, situated on the R. Biala. It has manufs. of silk goods and hats, and a trade in grain and manufactured products. It belonged to Prussia from 1795 to the time of the treaty of Tilsit in 1807, when it was ceded to Russia. It is the centre of the dist, of the same name having a pop. of 170,000, and has itself a pop. of 68,000.

Biana, or Bayana, a tn. of British India, state of Bhartpore, near I. b. of the Gambhir riv. It contains two anct. Hindu temples, and in ages past was a city of great importance. Pop.

(1901) 6867.

Biancavilla, a tn. Sicily, 20 m. N.W. of Catania, on the southern slope of Mt. Etna. The dist. produces wine and grain, and much cotton-stuff is made and exported. Pop. 13,000.

Bianchini, Francesco (1662-1729), Italian astronomer, born at Verona. He was a favourite of Pope Alexander VIII., whose librarian he had been, and continued in favour under Clement XI., who made him secretary of the committee for the reformation of the Calendar. He wrote several works of astronomical and archæological interest, and an Istoria Universale, 1697.

Bianco, or Biancho, Andrea, It. cartographer of the 15th century, born at Venice. His collection of hydrographical charts includes a map dated 1436, in which two islands, named Antilla and Man Santaxio, are placed W. of the Azores, suggesting a knowledge of America previous to the

voyages of Columbus.

Bianconi, Charles (1786-1875), an It., migrated to Ireland. After accumulating a small capital by hawking prints, he instituted in 1815 the first public conveyance between Clonmel and Cahir. The time was propitious, the market was crowded with horses and cars in consequence of the car-riage tax. In 1865 B. retired, having his turn, he presented B. with his

amassed a considerable forfune. His cars covered as much as 4000 m.daily.

Biard, Auguste François (1793-1882), celebrated Fr. genre painter, horn at Lyons. In his early years he travelled in the Mediterranean and the Levant, and his later pictures show plainly the influence both of this journey and of one which, in 1839, he made to Greenland and Spitzbergen. In 1859 he visited Brazil. Among his best known paintings are the Bergar's Family, the Slave Market, the Fight with Polar Bears, the Wandering Players, and the Mad-house. In addition to In addition to this type, on which his fame chiefly rests, B. also painted some historical

scenes. Biarritz, an important watering-place of S.W. France, dept. Basses-Pyrénées, on Bay of Biscay, about 5 m. W.S.W. of Bayonne, Under the patronage of the Emperor Louis Napoleon, or rather of the Empress Eugénie, for whom that monarch creeted the Villa Eugénie here. Eugénie here. B. rose from a small fishing vil. to a large tn., and since then its prosperity has been continuous. It depends for its prosperity entirely on its visitors, for it has no important industries. The air is salubrious, and the country pleasing. It has two casinos, luxurious villas and hotels, bathing, golfing, etc. Pop. (1906) 13,629.

Bias (c. 550 B.C.), son of Teutames, born at Priene, in Ionia, was one of the seven sages of Greece. He became a distinguished citizen of his native town, and many of his epigrams have been preserved. The stories associated with his name, such as his persuasion of the Ionians to settle in

Sardinia, are probably unauthentic.

Bib, Whiting-pout, or Brassy are popular names of the Gadus luscus, a fish belonging to the family Gadidæ and of the same genus as the cod, whiting, and laddock. It is about a foot long and less than five pounds in It occurs in the North Sea and Arctic Ocean.

Biban-el-Moluk, a valley of Upper Egypt, near ruins of Thebes, in which are the tombs of the anct. Egyptian kings of the 18th, 19th, and 20th

dynasties.

Bibbiena, a tn. in the prov. of ezzo, in Tuscany, Italy; pop. of Arezzo, in

commune, 8000.

Bibbiena, Bernard Dovizio (1470-1520), an it. cardinal, was the son of poor parents. Having entered the service of Cardinal Jean de Medici, he followed him to Rome after the death of Alexander VI., and was there entrusted by Pope Julius II. with sev. important commissions. When his interest in the progress of literature, and himself wrote plays in the manner of Terence.

Bibby Steamship Line. This line has traded with India for over a century, having been founded by John Bibby in 1807. The fleet now consists of eight twin-screw steamers, averag-ing about 8000 tons gross, all built at Belfast by Harland and Wolff, and registered at Lloyd's. They carry registered at Lloyd's. They carry cargo and first-class passengers, and run principally to Southern India. Ceylon, and Rangoon. Chief offices, 26 Chapel Street, Liverpool, and 10 Mincing Lane, London. E.C.

Biberach, a tn. of Würtemberg, on the R. Reiss, 23 m. S.S.W. of Ulm. 1796 Moreon defeated Latour here.

In 1796 Moreau defeated Latour here, and St. Cyr defeated Cray in 1800. A monument to Wieland, who was born in the vicinity, has been erected in front of the theatre. B. manufs. machinery, leather, toys, etc. 9000

Bible, The. The name B. comes to us from the Gk. τα βιβλια, which means the sacred books. In the original Gk. it is a plural form, but was treated because of its ending as a singular noun in medieval Lat., and as such has passed into most of the modern European languages. The B. consists of two great parts, the one the Old Testament, the other the New. In the O.T. is given the records of the covenant between the God of Israel and his chosen people the Hebrews, a covenant which, being proved to be New Covenant which is distinctly promised by the prophets, and which is founded by the life, teachings, and death of the Lord Jesus Christ. Christ himself speaks of the new dispensation which was to be the New Covenant. In the early Christian Church the two divs. of the B. were known respectively as the Old and the New Covenants. The word Covenant was rendered incorrectly by the Lat. word Testamentum, and so has passed in the language of the modern world for the two divs. of the

B., the Old and the New Testament.
The religion of the Hebrew race
was a national religion—a religion which affected the state as a whole, in which the individual was unim-portant. This national religion which bound them together, and this the priesting. Sense of unity, had come to them essentially aristocratic and conserva-with the exodus from Egypt. From tive, and was at this period supplanted

cardinal's hat in the year 1513, and the time of the founding of the ten years later despatched him to France as pope's legate. On his been bound into one united whole. Israel was conscious of her sacreddeath having been accelerated by a ness and singularity as a people from heated argument with the pope, who accused him of intriguing to succeed sounded from Mt. Sinai: 'I am the lim in the papacy. He had a lively Lord thy God, which have brought him in the papacy. He had a lively Lord thy God, which have brought thee out of the land of Egypt, out of the house of bondage. In this way and for this reason the literature of Israel reflects the history of the people, and this history shows us a people now carried away by the enthusiasm of its ideals, now still convinced that it is a chosen people, but chosen by a God whose care was for Israel alone, and was independent altogether of moral conditions. The history of the children of Israel is very much the history of a people whose course continually varies from the dark to the bright.

Historic tradition, which is essentially the feeling of a united people, traced the descent of the race from earliest times. The race had originally come from the E., had in the fulness of its power gone into Egypt, until there rose a Pharaoh who knew not Joseph, and then the period of their terrible oppression follows. That they were not a united people then is obvious from the history of their Egyptian sojourn, but with the release from Egypt and the march to the promised land we get the beginning of that feeling of national unity, a unity which in their case was bound up altogether with their religion. They were, however, in no sense a united nation as nations are united at the present time. They came from their wanderings in the desert to the promised land, but from the death of Joshua to the time of the prophet covenant which, being proved to be Samuel, their unity is broken by insufficient, was to be increased by a constant warfare between the tribes; and with the vanishing of the common which had welded danger together we get also the vanishing of the common spirit of unity among the people. The book of Judges reflects the broken unity of the children of Israel, and shows us the people divided amongst themselves and divided amongst themselves, and united only in the face of common dangers. But through the whole of dangers. this unsettled period we find that the tradition of unity lives on, especially in the minds and hearts of the greater men amongst the tribes, and this idea of national unity leads to the desire for a king who shall be to Israel the symbol of their unity and the anointed of God. Up to this time the centre of the monotheistic religion of the Hebrews was the sacred ark and the priesthood. This priesthood was

by the power of the prophets. The essential differences between priesthood and prophecy are that priesthood naturally tends to conserve all that has been regarded as good and great in religion, but makes little forward progress; prophecy, on the other hand, is essentially direct inspiration from God, by which religion is por-trayed to the prophet in a new light and as a practical solution of the problems which were troubling the men of the day. The first of the great Israelitish prophets was Samuel, and from his time we trace the beginnings of many of the great movements of the history of Israel. In fact, to a very great extent, it is true to say that the spiritual tradition which runs so obviously through the O.T. and to which the N.T. is linked up, takes its beginning in the work of Samuel and from his inspiration. Samuel was himself a priest, but is important in

the history of Israel as a prophet. A new danger had arisen which it was necessary for the Israelites to face as a united race. The incursions of the Philistines meant for them the renewal of the demand that they should have a king who would lead should have a king who would lead them in battle as a united nation. Samuel had perhaps more than any one the ideal of a united nation, but did not altogether relish the idea that an ideal which he cherished of a nation united by the worship of Jehovah should be actually united by the headship of an earthly king. But he was also wise arough to realise he was also wise enough to realise that for the preservation of the children of Israel as a nation it was necessary that they should have a king, and accordingly he gave them Saul. Then came the disobedience and downfall of Saul and the elevation of David, in this way beginning the great Davidic dynasty. The foundation of this dynasty was one of the great features of this period, since from the greatness of that race sprang the greatness of the Jewish empire and the foundation of a great ideal in the eyes of the people. Under the brilliant rule of David the Heb. race became a great nation, the rulers of a great empire, an empire which became their ideal. During the days which followed the downfall of the Hebrews, during the black days of their captivity, they regarded the period of the Davidic empire as a period to be looked back to and revered and reverenced as the greatest period of their rule. But they did also more than this: the recollection

The be regarded as the forerunner of the time when they should rule all the The ideal of the universal kingdom of God which their Messiah was to found was the outcome of the greatness of the temporal kingdom of David. This period of temporal greatness had also other effects as farreaching as the former: from this time the history of Israel is bound up to a very great extent with the history of her prophets. The magnificent conceptions of the spiritual religion of the children of Israel to be found in the literature of the O.T. takes its rise from this period. Prophets had probably been in existence in Israel as long as the priesthood itself, but they had probably dwelt apart, and had taken no very great part in the life of the people. From this time forth we get, however, the prophetic writings of the prophets, giving us the best conception of the greatness and wonderfulness of the religion of Jehovah and leading up to the N.T. and the new dispensation which is actually joined up to these wonderful writings. Another effect this period had was to make Jerusalem the city of God and the centre of the national and religious spirit of the Heb. people. The heart of the people turns naturally in captivity to 'Zion,' the city of David, and Jernsalem becomes the symbol on earth of the heavenly city in which is the throne of Jehovah himself. The final view which must be taken of this shortsketch of the history of the O.T. is the outcome of rivalry between the northern and southern tribes, leading to the division of the kingdom into two, Israel and Judah. In the main, although at times unfriendly, the general tendency of the two kingdoms is to remain on the best of terms. For a time they are able to subdue the smaller kingdoms which surround them, to offer steady resistance to the larger kingdom of Syria, but with the rise of the greater empires of Assyria and Babylon the two kingdoms fall and the captivity begins. The shame, the horror, the self-contempt which was felt by the race for themselves is evident in the writings of the O.T. They felt that the idolatrous departures from the worship of the God of Israel had been punished only too deservedly by their exile and captivity, but throughout it all runs the idea that God will not all runs the idea that God will not leave them to perish ignobly in their chains, but will restore his chosen people and make them a great race with the coming of the Messiah. But with their first captivity ends their era of greatness as an independent nation; no longer are they to glory in the ferre of their Davida kingdon. of their bygone greatness gave them the vision of a still greater kingdom which they would found with the Messiah as their leader, and so the days of the kingdom of David came to

race, and then again they fell before the rising tide of the great Rom. race. They were self-governing, that is, they governed themselves according to the literature, a literature which never ceased, and in which is reflected the fallen glories of the Israelites, the contempt in which they held themselves, their deservedness of such a terrible the house of bondage.

The main division of the B., as has already been pointed out, is into two great divs., the O.T. and the N.T. The O.T. is divided in the Eng. language into thirty-nine books, in the Heb. B., however, the div. was only into twenty-four, 1 and 2 Kings, 1 and 2 Samuel, 1 and 2 Chronicles, 1 and 2 Chronicles, 1 and 3 Chronicl Ezra and Nehemiah, and the twelve minor prophets being respectively counted as one book. This div. is not altogether stationary as far as the Heb. B. is concerned, the number being reduced by Josephus and increased by Ephiphanius. The books were grouped together into three main groups or divs. The first the Torah or the Law, the second Nebiim or the Prophets, and thirdly the holy writings of Kethubim. The Torah consists of the books of Moses or the Pentateuch; the writings of the prophets include the historical books, or the former prophets and the latter prophets, that is the prophetical writings proper; while the poetical books comprise, in addition to the Psalms, Proverbs, and Job, the five rolls, Ruth, Lamentations, Ecclesiastes, and Esther, together with the books of Daniel, Nehemiah, and Ezra.

The law books of Moses, and the historical books.—The tradition of the Jews ascribes to Moses the writing of the first five books of the B., to Joshua the book named after him. and to Samuel the books which take their name from him. Since all Jewish authorship was anonymous, it

Empire succeeded empire, Babylon, the question of authorship, not re-Persia, Greece rose and fell, but the Hebrews remained as a race dependent upon their successive conquerors. Only for a century did they restore themselves as an independent differences of style and language race, and then again they fell before which show themselves also in the book of Joshua, and which prove obviously that the books were not all written by the same hand, and that it was not all written at the same time. All this simply proves that it is futile to attempt to base the authorship upon the classification already given for that all the governed themselves according to the all written by the same hand, and law of Moses, but they were always that it was not all written at the theinferior, the conquered race. Such same time. All this simply proves is the later history of Israel, a history which takes us up practically to the destruction of Jerusalem (their Zion, to already given, for that all the the city of David, and the prototype evidence which we have goes to of the city of God) by the Roman prove that the books of the Pentalegions in A.D. 70. But it is necessary teuch and the book of Joshua, which to emphasise here the fact that cannot well be separated from the to emphasise here the fact that cannot well be separated from the through it all there runs a continuous, previous five books, are not subsequent narratives, but a series of independent narratives which have been carefully collected and edited by one man. This view is supported also by the facts that sev. incidents are repunishment, but above all the idea lated more than once, and that many that the God of Israel was still the of the laws are repeated. Whenever God who would deliver them out of reference is made to the name of Moses he is referred to as a prophet, i.e. a man who spoke to the people from God. But it is hardly to be credited that the books of the Pentateuch, which comprise a organised priestly ritual, should have come in their present state from the hand of the prophet himself. In a close examination of the Pentateuch it became obvious that a part of it gave evidence of being pre-Mosaic: references were made to kings who ruled over the land of Edom before the children of Israel had kings; there were, as has already been pointed out. many parallel and double references, and one of the authors had a strong bias in favour of the priestly section of the community, devoting a great part of his writings to matters affect-ing the ritual of the Hebrews. All these points were noticed by a Belgian physician of the name of Astnec. who formulated a theory seemed both sound and plausible. The div. which he made corresponded with the div. that was emphasised by the writings, some of which were prophetical in tone, the others adopting the attitude of the priest. Astnec concluded that the difference corresponded with the employment of the term Jehovah (Lord) and Elohim (God). Exodus vi. 3 states distinctly that the name Jehovah was a name that the name Jenovan had the employment of which only came the employment of which only came 'And into being with the exodus. I appeared unto Abraham, unto Isaac, and unto Jacob, by the name of God Almighty, but by my name is obvious that this classification is Jehovah was I not known to them.' mere conjecture, and a more detailed Accordingly, in this way the writexamination of the case shows that ings of the Pentateuch were divided

and Jehovistic writings. The name 'God' was taken as showing that the employment of that term indicated the earliest or primary writings, while the term 'Jehovah' was used in what were regarded as supplementary writings. In this way rose the theory of the supplement-hypothesis. Hupfield proved practically the existence of a third writer who agreed largely with the Elohistic writer, but also in many places widely different from him. He also expressed the opinion, which found wide acceptance, that the writings of this third author and of the 'Jehovah' authority were not supplementary, but were altogether independent The three writings. writers who have been mentioned obviously interpret three different tendencies, three different points of view. We have different points of view. We have distinctly the writings of the prophetical mind, the priestly mind, and the mind of the layman. How these three points of view came to be united together into one set of writings is only explicable when we re-member the usual manners and mannerisms of the Heb. copyist and the usual tendency of the Heb. genius. The order of the writings seems obviously to be the Book of the Covenant, followed by Deuteronomy, followed by the code of the priests, which is obviously the outcome of the time when the priesthood had assumed the position of a ruling caste, that is, after the Restoration. The books of the Pentateuch can best be regarded as the outcome of the combination of writings of various periods in the history of the Jews, combined tohistory of the Jews, common gether and probably added to by the ritings. copyist The H mself a nce he great copied rities and gave any necessary har-mony by his own additions. Almost all the writings of the O.T. may be regarded as compilations from various sources. The main idea running ous sources. through the Heb. mind was the addition of part to part, not the development of a single idea, and this is fully exemplified in their genius of architecture, in the poetical books and the books of the law, and the historical books also. The poetical looks. - The general tendency of the Hebraic mind was

not to express abstract ideas, but to use the medium of personal action and desire for the expression of feel-The reduction of all experience ing. to personal standards is reflected throughout the whole of the poetical

according to their sources in Elohistic | be almost impossible; they expressed themselves as the subject in question impressed them personally, and not in relation to the subject apart from its effect on them. The poetic structure of these books remains very much unchanged fron the Hebraic . down to the sisted not of the fall of accent or the quantity of the syllables, but in a rhythm of the sense alone, a rhythm best known as a sense rhythm or parallelism. The authenticity of the Psalms as we have them at the present time is, as with the historical book, open to very grave doubts and very obvious criticisms. The Psalms The Psalms which are ascribed to David, Asaph, and Solomon, to name only three of the important authors given in the book itself, cannot be regarded as The tendency being strictly correct. is always to ascribe some ancient and honoured name to them, but while it is impossible to believe the authorship in every case, it is also wrong to deny any Davidic origin to any of the Psalms. A number of them un-doubtedly originated with David and with the other authors to whom they are ascribed. But as with the historical books, it is impossible to overlook cases of parallelism, as c.g. Psalm xiv. and Psalm liii., where it is

impossible to come to any conclusion except that the copyist has again exercised the undoubted licence which he allowed himself. It is also impossible to agree with the conclusion that all the Psalms are of the great exile period, since we have many examples of earlier Psalms and songs in the B. We can, however, agree that since the period of the exile the Psalms undoubtedly became the means of expression of religious feeling for the whole of the Heb, race, Amongst the other poetical books to which a similar criticism can be applied is the book of Proverbs which proves the Hebrew a poet even in his philosophy. The greatest name in the wisdom of the Jews is undoubtedly Solomon, and to him is usually ascribed the book of Proverbs. That it is possible that Solomon contri-buted much of the wisdom of that book is undoubted, but the whole of it can certainly not be ascribed to him. The book of Ecclesiastes, an-other example of Hebrew poetic philo sophy, was written probably some considerable time after the exile. The book of Job sums up the whole question of the religion of the O.T., the goodness and justice of God in relation to the merit of the sufferer. It asks the question why the lover of books. To view things from the God is afflicted with grievous punish-point of view of a theory only was to ments, and the whole question is

Here too, however, an obvious interpellation can be noted in the speeches of Elihu who disconnects the argument, and whose speeches may be assigned to a very much later author.

The prophetical books.-The prophetical writings begin with Amos, after whom the succession of prophets is regular. The older school of pro-The later prophets wrote down their teachings or doctrines which they had not spoken but wished to be not be likened to the priestly office which was definitely appointed. A prophet was a man of the moment, a man sent by God, with whom God spoke, to whom God appeared, and who was given a definite message to tell to the people directly from God. He did not even of a necessity see into the future, he need not as a prophet foretell events, he was there in order to interpret to the people the various acts of God, and to guide them over a crisis in the affairs of the That in almost every case he nation. foretold of the joys and splendours of the heavenly kingdom is due to the fact that it was necessary, in order that the people should strive after the kingdom of God, that the image of that kingdom should be ever before their eyes, and that they should be continually reminded of the greatness and goodness of Jehovah.

The customary Jewish division of the prophets is the former prophets and the latter prophets. The former prophets were the records of Judges, Samuel, and Kings; the latter are the writings of the prophets of the later period. These again are subdivided into the greater prophets and the minor prophets. The books of the former prophets are distinctly historical books, written round the central characters of the period, and interest of the period, and interest of the period and interest of the period. fluenced by the earlier Hebraic writings. Judges is simply a compiled narrative completed and arranged by the compiler: Samuel, a book which centres round the doings of the prophet Samuel and the kings Saul and David. The book of Kings is again simply a compilation which, in conjunction with these other books, completes the history of the Jews from the entrance into the Holy Land down to the fall of Jerusalem. The latter major prophets consist of the writings of Isaiah, Jeremiah, and Ezekiel. The prophecy of Isaiah falls into two very distinct parts, the div. being chaps. 1-39 and chaps. 40-66. The latter is

debated and answered by the various | much later than the former, and even of the former it is now doubted whether Isaiah did actually write it all. The latter portion seems almost certainly to have been written just previous to the restoration, a century and a half after the original prophecies of Isaiah himself. Jeremiah's prophecies began during the greatness of the empire of Babylon, and were directed against the sins of the people; phots, Samuel, Elijah, and Elisha, but while lamenting the awfulness of left no writings, neither did the their sin and trying to turn aside the prophet Jonah, the book called after wrath which he saw must come, he his name being only an episode in his eventually prophecies the restoration. Ezekiel flourished at the beginning of Ezeklel flourished at the beginning of the 6th century B.C. He was carried off together with other exiles to Babylon, and from here he prophesied the coming fall of Jerusalem (586). Towards the end of his prophecies comes the prophecy of the future restoration of the nation, and he describes in detail the reorganisation of the restored nation. The twelve minor prophets were—as has been pointed out—regarded as the second div. of the latter prophets by the Jews, and also as a single book. The approximate dates of these minor prophets are: Amos and Hosea, 740; Zephaniah, 620; Nahum, about 600; Habakkuk, about the same time; Obadiah, after 586; Haggai, 520; Zechariah, 520; Malachi, 450; Joel, 5th century;

Jonah, 4th century.

Canon of the Old Testament.—The
word canon is Greek. In its original meaning it signified a straight rod or rule. In its scriptural application it probably means the books which were considered the standard books by the Hebrews. All the writings included in the canon were held by the Jews to be the direct inspiration of God. The Jewish canon was divided into three distinct parts. The Torah, or the Books of the Law; the Prophets, con-sisting of eight books—the former The Torah, or the prophets and the latter prophets; and the Sacred Writings—the hagiographa—which consisted of the poetical books, the Rolls, and Daniel, Ezra, Nehemiah, and Chronicles. This div. represents probably the stages in the canonising of the various books. Since the closing of the whole canon by Ezra cannot be accepted, it is necessary to form an opinion from the internal evidence given in the books themselves as to the probable date when these three divs. actually be-came parts of the canon. The earliest canon seems to have consisted of the Torah, about 444 B.C., supplemented probably some two lundred years later by the prophets, and again one hundred years later by the prophets, and again one hundred years later by the hagiographa. The Heb. canon contained none of the books which form the Apocrypha. The Greek translation of

the B., the Septuagint, contained these, but they were pronounced against by Jerome at the end of the 4th century. A.D. The old Lat. version the Heb., but use was also made by and the Vulgate still, however, contained them, and the Council of The New Testament.—The period Trent canonised them into the Catholic B. The Protestants of the Reforma-tion, however, treated them in the same way as they had been treated by Jerome, and while acknowledging their utility as books of moral teachings, denied the divinity of their revelation. By the advanced sections of the Reformed Church, however, they have been entirely rejected, and the canon of the O.T. is to them identical with the canon of the Hebrews.

The text of the Old Testament.-The original form of the Hebrew text was purely consonantal. It was not until the 6th or 8th century that the pointed text was given us by the Traditionists or Massoretes. Hence the name Massoretic text is given to the MSS, from which our O.T. is derived. This probably only became fixed about the end of the second Christian century. The aim of the Massoretes was to preserve and hand down the text which had been handed down to them. To the end that the down to them. To the end that the proper pronunciation of the text might be preserved, they added a system of vowel points and accents such as we now have. The oldest MSS. of the O.T. which we have only goes back to the beginning of the 10th century, although some of the writings included in that MSS. probably data head, one on two centuries writings included in that AISS. Probably date back one or two centuries earlier. Further, all the MSS. which we have represent the same Hebrew text, i.e. the Massoretic. The chief versions of the O.T. which we have are the Targum, the Septuagint, and the Latin Vulgate. The Targum is a purely Taylich version defing from purely Jewish version, dating from the period immediately antecedent to the Christian era. The writings are certainly not earlier than the 4th century B.c. The text of the Targum is practically identical with the Massoretic text. The Septuagint was a Greek version of the Jewish canon for use by the Greek speaking Jews of Alexandria. Originally it contained only the Pentateuch, but the later raion were after-

n it, so that by century it was by the Hebrews

and as such passed on to the Christian Church. There are also other versions of considerably less importance called by the names of Aquila, Symmachus, and Theodotion. The old Lat. version was in the 6th century superseded by the Latin translation of Jerome, to which the name of Vulgate was given.

The New Testament .- The period of Jewish history just previous to the birth of Christ had been a period in which the hopes of the coming of the Messiah had been raised and quickened. Some of the books of quickened. Some of the books of the Apocrypha, written during the last two centuries previous to the birth of Christ, had given full vent to this feeling. But at the outset it is necessary to state that the Jews did not put forward in any way the idea of a Christ who was to come and suffer death in this world. Still, the expectation of the coming of a Messiah was raised to its lighest point just previous to the realisation of that expectation, which, however, passed without recognition on the part of the Jews themselves. The rise of the literature of the N.T. did not come, however, wi Christian rel

no writings; at first did for a literature to instruct future generations in the truths which ther themselves had experienced. themselves and experienced. To understand this we must realise that the early Christian believed in the immediate coming of the Lord. He looked forward to his release from this earth by the second coming of the Messiah, and this coming was daily, almost hourly, expected. Hence he did not see the necessity of writing down his experiences for generations who would not need them. The literature of the N.T. then arose because ultimately there arose a situation which needed a literature: it was not written from any desire to omulate the writings of the older Hebrew book. By undertaking his missionary journeys, Paul also undertook the necessity of creating a literature. When many small settlements of Christians grew up in all parts of the Roman world, it became necessary either to visit them personally or to substitute for that visit letters of advice and counsel. In this way and for this purpose were written the epistles to the Thessalonians, which are the oldest Christian documents which we have, and incidentally it should be noticed that both these epistles are written with the immediate object of calming the agitation which had arisen from a belief in the immediate second coming of In the various epistles Messiah. which St. Paul addressed to the Christian colonies he developed his ideas of the doctrines of Christ, and puts forward his view of the teachings. Beyond the 'eschatological' views which were gradually beginning to subside, the apostles and disciples travelling there was also now arising other views of doctrine which were a disturbing influence in the Christian Church, and which many of the Pauline epistles were constant travellers, they tarried were written to rebuke.

The epistle to the Romans was a practical summing up of the gospel of St. Paul. He had planned a journey to Rome, but he knew that his visit to Jerusalem first was fraught with danger. Hence he sent his epistle to the Romans, in which we get a full and clear account of the Pauline doc-After this letter most of his epistles contain theories (Ephesians and Colossians are examples of this), but through most of these epistles runs his idea of the unity of the Church which was to unite both Gentile and Jew, 'that God might have mercy on all.' His epistles to Timothy and Titus are purely pastoral letters, written to his helpers when the charge of a church had been committed to them. The epistle to the Hebrews was not written by Paul, but probably by a disciple of his, or at least one greatly under the influence of his teachings. Many theories have been put forward; Barnabas, Apollos, and Luke all being given by different authorities as possible authors.

The other epistles of the N.T. are to a very great extent the following of the impulse already given by the 'apostle of the Gentiles.' They are usually known as the 'Catholic They are epistles, a name given them since they were to appeal not to a special section of the Church, but to the 'universal' Church of Christ. The name Catholic also amongst the followers of the early Church was equivalent to the word canonical. First Peter was written for the Christians of the northern prov. of Asia Minor, who were probably at this time suffering from a persecution. The epistle of James is addressed to a much larger section of the community of Christians. epistles of James and Jude written by the brothers of Christ, the epistle of Jude being addressed to a section of the Christians who appear to have fallen under the influence of men who were making the propagation of the gospel the work of mountebanks.

The Gospels and the Acts.—The rise of the historical literature of the N.T. was probably delayed in much the same way and for much the same reasons as the beginnings of the epistolle literature. The early Christians did not consider it necessary to record the doings and sayings of Our Lord, they were simply awaiting the coming of the Messiah. Gradually, however, there would grow up a tradi-

the apostles and disciples travelling from place to place, would begin to feel the necessity for some written account of the life of Christ. They were constant travellers, they tarried but little in one place, it was probably long before they returned. During their absence it was necessary that instruction of some description should be given to their converts and followers. Hence came the desire for a written literature which would give that instruction, and would contain the beginnings of the historical litera-ture of the N.T. The constant intercourse of the disciples one with another, the recollection of the sayings and doings of Our Lord supplemented by one another, would give the necessary basis for a written account of the life of Christ, and would fix that life on definite lines. Probably the earliest form of gospel

that we have is to be found in the sayings of Christ which were written down in Hebrew by Matthew, and which are generally known as the 'Logia.' The writing of this 'Logia' is definitely confirmed by the statement of Papias, and it forms the core of the gospels of St. Matthew and St. Luke, This 'Logia' did not supply the full needs of the Christian community, it in no way professed to be a complete record of the life of Christ, but it was for this complete record of the life of Christ that the Christians. as their hope of the immediate coming of the Messiah grew fainter, wished. And St. Mark, supplementing the tradition already held by the teaching of St. Peter, gave us our first com-plete gospel. This was written at Rome, probably between the years A.D. 64-70. The gospel according to St. Matthew was in reality simply the 'Logia' together with the gospel according to St. Mark, and in the course of time this gospel superseded almost entirely the use of or the need for the original 'Logia.' St. Luke's St. Luke's gospel is written largely from the historical point of view. It is addressed to a particular individual; it is composed of very much the same materials as the gospel according to St. Matthew, but is supplemented by the author from other sources. This was the first vol. of that writer's work, since it seems to be very generally accepted nowadays that St. Luke supplemented his first writings by the addition of the Acts of the Apostles. These three gospels form what are called the Synoptic gospels, the fourth gospel, that according to St. John, being held to stand upon a somewhat different plane. The gospel according to St. John was written probably about the end of the first century. It

contains much the same information | Bede himself, although none of the as the Synoptic gospels, and was probably written with full knowledge of what those gospels contained. But it is written from a highly ethical and idealistic point of view, and formulated the doctrines of the Christian creed in such a way as to reconcile them and make them more acceptable to the Gentiles. The fourth gospel has played the most important part in the history of Christian theology, and in the formation of the Christian creed. The Acts of the Apostles, as mentioned above, form the second contribution of the writer Luke, and seem, from internal evidence, to have been written in part at least by an eyewitness. It traces the history of the Christian Church from the death of Christ down to the the death of Christ down to the coming of Paul to Rome, where they leave off very abruptly, leaving the later history of the 'apostle to the Gentiles' in obscurity. The writings included in the N.T. form by no means the end of the writings of the early Christian Church. We have a number of writings of the followers of the apostles, who followed the traditional writings, and who wrote many books. Amongst these may be men-tioned the gospel according to the Hebrews, the Ebionite gospel. the Protevangelium of James, and the Acts of Paul. The canon of the N.T. Acts of Paul. The canon of the N.T. was much disputed. The various churches adopted varying canons for the literature of the N.T., but early in the 4th century Eusebius gives us an account of the disputes, and reviews the books which were generally accepted. He gives three classes, the first of which was generally accepted, and included the Gospels, the Acts. the Pauline Epistles, I Peter, and I John, together with the Apocalypse. The other epistles, Jude, James, The other epistles, Jude, James, Peter, and 2 and 3 John, are ques-tioned. Books such as the Acts of Paul and Hermas are rejected. But the church of Antioch and the church of Syria give other lists. Under the influence of Athanasius, however, and at the Council of Carthage, the canon of the N.T. was fixed as we have it at the present day. Disputes, however, still rose with the Eastern Church, but in the course of time the canon as fixed by Athanasius and Jerome was generally adopted by the Church universal.

Bible, English .- The history of the Eng. B. consists in the early shapes of its development merely in transla-tions in manuscript in the English tongue directly from the Vulgate. Bede tells us that Cædmon instructed by an angel put into poetical form 'The Creation of the World and the beginning of the Human Race,' whilst

work is now extant, is said on reliable authority to have trans, part of the gospel according to Saint John into the English tongue. During the centuries which passed between the death of Bede and the Norman Conquest we have many translations of various parts of the B, which take in many cases the form of glosses. No very great attempt seems to be made at independent translations, and yet in some cases we have examples of these translations, but for the most part the work takes the form of glosses. With the coming of the glosses. With the coming of the Normans it is only natural that this translation should cease, a conquered race treated in a servile manner by their conquering masters cannot be expected to put forth the necessary energy or spirit to produce trans-lations in the vernacular, a tongue which was only spoken in their hovels and which was entirely disregarded by their conquerors in the court and the high places of the land. But with the ultimate separation from the Continent, and the union of the Saxon and Norman people into the one Eng. race, by a very natural law the preponderating section of the community imposed their language and their customs on the conquering race. Although during the period of absolute Norman influence we have some evidence of translations of parts of the B., all such translations are into the language of the conquerors, but now we come to the recommencement of English versions. Previous to the great version by Wycliffe we have some evidence of parts of the B. having been trans. into English during the 14th century. In the 14th century we get the Wycliffite versions of the B. The early version was issued probably about 1382, and the later version four years after the death of Wycliffe, that is in the year 1388. What part years into year 1388. What part Wycliffe himself actually took in the translation is not definitely known, it is, however, supposed on fair evidence that he trans, the gospels. The work began by the translation of the gospels, and this part was probably finished some twenty years before the B. was actually pub. The vast probability is that the O.T. portion of the early version was the portion of the early version was the work of a very fervent Wyelillite, Medas do Herford. The later version was probably the work of the suc-cessor of Wyeliffe, John Pursey, and is certainly, as far as idiomatic Eng-lish is accounted. lish is concerned, a great improvement on the early version. It was also very popular, there being a great many copies of it remaining at the present day, in spite of the persecutions of the Lollards. These versions as an A.V. of the Great B. But were the last of the MSS. Bs, of England. In the 15th century John Caxton had introduced the art of printing into this country, and ultimately advantage was taken of it to print at least portions of the Scriptures. It is, however, necessary to notice that the printing of an Rheims, and the O.T. at Doual in 1582 Eng. B. did not immediately follow Eng. B. did not immediately follow the introduction of the art of printing into the country; that the B. had been printed in the German states at least seventy years before an Eng. printed version appeared; and that no complete Eng. B. was printed in England before 1538. A printed ed. of the N.T. by Tyndale appeared in 1525, having been translated into the vernacular, and printed under difficulties somewhat great. During the ten years which followed, Tyndale also trans. and printed various other portions of the B. The characteristic point of the translations of Tyndale are their absolute independence of the work of any other translator. The first full translation of the Eng. B. is the work of Miles Coverdale, which, although it must have been in progress at the same time as the work of Tyndale, was done independently of this. His translation is not so independent as that of Tyndale. Coverdale probably used in his translation Luther's B., the Vulgate, and, from some evidence, Tyndale. The first Eng. B. printed in England was the work of one Thomas Matthew, who cannot claim to be at all an independent writer, since the greater part of his work is a reproduction of Tyndale and Coverdale. Dr. Westcott points out that this B. was printed by the king's licence, and that from this ed. of the B. we get all our subsequent eds., this being taken as the standard work. The next edition of the Eng. B. was the Great B. undertaken under the patronage of Thomas Cromwell, and giving on its title page a picture of Henry VIII. presenting the B. to Cranmer and Cromwell, who in turn presented it to the clergy and laity. This B. was printed under the supervision of Coverdale, and while the printing of it was commenced in Paris it was finished in London, owing to the action of the Inquisitor-General, who attempted to stop the printing in Paris. In 1560 appeared the Genevan, or the 'Breeches' B., so called from the translation of Genesis iii. 7, 'They sewed fig leaves together and made themselves breeches.' The printing and publication of this B. have of the Scriptures of the N.T. was done at the expense of the congregation at Geneva. The B. was a the present time are essentially thorough revision of the 'Great B.' Massoretic texts. The Massoretic The Bishop's B. was printed about texts are the work of a sect known as the year 1568, and was undertaken Massoretes, who, continuing in a way

and 1609 respectively. They had a fair amount of influence on the A.V. of the B. which appeared in 1611. The work of bringing out the A.V. of the B. was one of the results of the Hampton Court Conference, called by James I. in 1604. He suggested the revision of the Eng. B., a work to be done by the best scholars in the kingdom. The version was to be without notes, since the notes of the Genevan B. seemed to the king to be seditious and dangerous. The men who were employed to do this work consisted of the best scholars in the country. They were divided up into six committees, each committee having a special section of the B. to work upon. The whole of their work was revised by a general committee. That the work was carefully revised is obvious from the fact that over two years were spent in that revision, and altogether the work took about seven years. This version continued to be used, and still, in spite of a R.V., continues in general use in this country at the present time. The R.V. was the work of Convocation, it being determined in Convocation in 1870 that two committees should be formed for the revision of the Scriptures of the O.T. and N.T. re-spectively. These committees were to have the power to invite the co-operation of any eminent scholar, no account being taken of nationality or creed. Co-operation was invited with America, and the work ulti-mately became the work of Englishspeaking Christians throughout the world. The Roman Catholic Church alone refused co-operation. version was completed by 1881, and was in that year presented to Convocation. Since that time it has been used in churches throughout the length and breadth of the land, and is slowly replacing the older A.V., having many advantages of translation and rendering over that version. The texts and versions of the B.— The earliest of all extant Heb. MSS. of the O.T. only dates back to the 9th century A.D. That is sev. centuries later than the earliest texts which we have of the Scriptures of the N.T. All the Heb. MSS. which we have at

selves the task of sifting from the mass of tradition and commentary of the Talmudists, and from the paraphrases of the Targums, the real, actual text of the O.T. Their work continued from about the 6th to the 11th centuries. They provided the text with points to indicate the vowels, and thus went far in fixing the correct interpretation of doubtful passages. In this work they were making a distinct advance on the work of the Talmudists, who had said much concerning the correct vowel pronunciation of the Hebrews, but had not actually provided vowel points for the MSS. After the production of an After the production of an actual text from the mass of tradition of the Talmudists, extraordinary precautions were adopted for the safe preservation of the corrected MSS. Another text is that of the Samaritan Pentateuch, which differs in many places from the Massoretic text, the differences being usually of small importance, but the Massoretic text is preferred to this. This text contains only the Pentateuch, and is therefore only the Fentateuch, and is therefore not of very great importance. One of the most important versions which we have is that of the Septuagint, which is a copy of the books of the O.T. written in Greek, and probably made in Egypt during the 3rd century B.C. The Septuagint version, however, when completed contained not only the books of the Heb. canon, but the books which have formed the books of the Apocrypha since the Reformation period. Of Syriac versions the most important is the Peshitto Syriac or the Simple Version, made probably about the 3rd century A.D. This version became a necessity to the Christian missionaries who were spreading abroad the doctrines of Christianity in the lands of Syria and Mesopotamia. There are also and Mesopotamia. Coptic and Ethiopic versions which were used for much the same purpose in Egypt and the neighbouring countries. Of Lat. versions the two most important are the old Lat. version, point of view of the N.T. than of the O.T., since it is only a fact O.T., since it is only a Lat. version of the Septuagint in the O.T., but an actual translation of the original Gk. in the N.T.; secondly, the Vulgate, B. of the Roman Church even at present day, the O.T. of which wa translation by Jerome of the old Heb.

text, the text which we now call Massoretic not yet pa

the Massor same from century.

Bible Christians, a society founded doctrine that

the work already done by the Tar-in 1815 by William O'Bryan, or gums and the Talmudists, set them-Bryant, who was a Methodist lay preacher. The name B. C. was given to the sect because they appealed only to the Bible for the doctrines which they taught. The society was founded at Shebbear, in N. Devon, and became of importance in Devonshire and Cornwall. The ministrations of the Wesleys undoubtedly had great influence on the development of this sect, but the district in which it became first of great importance was one which had to come under the personal influence of the great leader of the evangelical revival of the 18th century. The sect flourished, but increased in numbers slowly. O'Bryan was the natural leader for some time. but when he put forward extravagant claims, the sect split into two divisions. A reconciliation took place, and agents of the B. C. were sent to various parts of the British Empire. They did not differ essentially from the Methodists in any point, but yet in the early days they suffered much even at the hands of the Methodists. They amalgamated with the Methodists in 1906. and now form part of the United Methodists. Outstanding names in their denomination are those O'Bryan, Thorne, and Billy Bray. In 1906 they had over 200 ministers, 30,000 members, and 650 chapels.

Bible Communists, founded in 1848 by J. H. Noyes, and known as the Oneida Community. The primary object of the community was essentially religious. It certainly flourished at the beginning, and many of its practices were hyper-communistic. They practised not only community of property and life, but by means of a system called complex marriages, community of women also. In 1879 this system of complex marriage was discontinued, and two years later the movement was turned into a joint stock company. It has

but with marriage ct feature

was banished.

Bible Societies. These may be defined generally as associations which have as their chief work the translation and propagation of the Scriptures amongst all nations. They are usually accepted as a late outcome of the

after the Reformaicties begin to attain

any real importance; but previous to the Reformation, and during the period immediately following the Reformation, we find the Scriptures being translated and to a certain extent dissemin

That

fluence on this movement cannot for one moment be denied. Before or during the 18th century we find the iollowing societies formed: The Society for the Propagation of the Gospel in Wales, 1662; the Society for Promoting Christian Knowledge, 1698; the Danish Society for Sending Missionaries to India, 1705; the Society for the Propagation of the Gospel in Foreign Parts, 1701; the Society for Promoting Christian Knowledge Amongst the Poor. 1750: the Naval following societies formed: Amongst the Poor, 1750; the Naval and Military Bible Society, 1780. All these societies had ultimately the same object in view—the spreading of Christia lation and

In Germa been formed with the same object, and the society formed in 1792 for the Propagation of the Gospel in France was brought to a speedy end by the Revolution. The evangelical revival of the 18th century naturally had a great influence on these societies, and led to the establishment of many new ones.

The British and Foreign Bible Society.—This society was founded in 1804, and remains to the present day the most important of all B. S. It had its origin in the difficulty which the Rev. Thomas Charles of Bala found in the work of propagating the gospel in Wales, owing to the lack of Welsh To cradicate this difficulty the society was formed with the object of sending out copies of the Gospels translated into the necessary languages to those countries where the need for them was lelt. They were to be neutral as far as doctrinal translations were concerned, and were to help in the circulation of the Holy Scriptures 'without note or comment.' The original society founded in London in the year already mentioned consisted of a committee of thirty-six, six of whom were to be distinguished foreigners who lived in or near London, and the remaining thirty members were to be divided amongstrepresentatives of the Church of England who had a membership of fifteen, and representatives of nonconformity who had a similar number of members. The society found sup-port from all Christian bodies, and developed rapidly, having at the developed rapidly, having at the present day 6000 auxiliary societies in England and Wales, and over 2000 abroad. The contributions from all sources amount to nearly £500,000. Nearly 2,000,000 copies of Bibles and Testaments are distributed over year, the majority of which are distributed in England and Wales, whilst the society also sends large contributions annually to the various religious asso-

of the Protestants had a great in-|ciations throughout the country. The society met with many difficulties, especially from its adhesion to the principle of the distribution of the Scriptures without note or comment, but it has in most cases been able to surmount its difficulties. Other British Bible Societies which may be noticed briefly here are the Edinburgh Bible Society, 1809; the Glasgow Bible Society, 1812, which, owing to difficulties as to the form in which the Scriptures should be published by the British and Foreign Bible Society disassociated themselves from that body, and became in 1861 the Scottish National Bible Society. The Dublin Bible Society was founded in 1806. and afterwards, by amalgamation with kindred societies throughout Ireland, became the Hibernian Bible Society. It is associated with the British and Foreign Bible Society, and contributes annually to the funds of that society. Amongst the more important of the European B. S. may be mentioned the European B. S. may be mentioned the Prussian Bible Society, 1814, originally started as the Berlin Bible Society in 1806; the Russian Bible Society (Revel), 1807; the Swedish Bible Society, 1814; and the Finnish Bible Society, 1813; there are in addition innumerable others. Most of these condition found appricable support societies found considerable support in the early days from the British and Foreign Bible Society, and many of the Continental societies have been bitterly attacked by the Roman Catholics. Catholics. There are no Roman Catholic Bible societies; the Catholic Encyclopædia saying on the subject, 'The Church, believing herself to be the divinely appointed custodian and interpreter of Holy writ, she cannot, without turning traitor to herself, approve the distribution of Scripture without note or comment." merica the Philadelphia America the Philadelphia Bible Society was founded in 1808, and gradually a number of societies grew up which by 1839 had all amalga-mated into the American Bible Society. The American society is one of the most active of all Bible societies. distributing well over 2,000,000 copies of the Scriptures every year, and translating these into nearly 100 different languages. The society is wealthy, and since its inception has distributed nearly 100,000,000 copies of the Old and New Testaments.

Biblia Pauperum, a Lat. term meaning 'Poor Men's Biblo,' is the name which has been given in modern times to a series of MSS. and printed books which contain rude illustrations of biblical subjects, with short explanatory text accom-Very often panying each picture. these pictures represented events in the life of Christ, together with the

corresponding prefigurements or types i that occur in the O.T.: the text was in rhyming Latin verse. On an anti-pendium or altar-front in the Leopold Chapel of Klosternenburg in Austria fifteen scenes from the life of Christ were executed in enamels. Each scene was accompanied by two O.T. prefigurements, and the date of the work was 1181. The MS. at St. Florian, in Austria, dating from the early 14th century, is the first one known to contain a similar triple arrangement. The books which contain such pictures belong to the class of 'block-books' which were produced largely during the years pre-ceding the invention of typography. They are so called because they were printed from engraved wooden blocks: it is not certainly known whether the books were printed by rubbing the back of the paper, when placed on the block, or whether a primitive type of press was used. One side only of the paper was printed on, and two blank sides were then pasted together. The name B. P. is first used in Heinec-ken's Idée Générale d'une Collection d'Estampes, 1771.

Bibliography is derived from the post-classical Greek word βιβλιογραφία which, when first used, meant the 'writing of books,' and was so used in France ('bibliographie') till the 18th century, and in England till the 19th century. It was mainly owing to the Rev. T. F. Dibdin that the change was then made in England; Southey pre-ferred the term 'bibliology,' which has now dropped into desuetude. The gerated nd

scope of came within their province to classify books from the point of view of their value as literature, their artistic excellence, etc. It is now recognised that the proper function of B. is to suggest certain general principles of arrange-ment and their application. These principles are not very many in number nor particularly abstruce, and the main requisite of any B. is that a really definite idea should exist as to At the the use of the finished work. present time one school of bibliographers has for its special study such subjects connected with books as the history of printing, book-collecting, book-binding, book-illustration, and other allied topics. The London Bibliographical Society, the Edinburgh Bibliographical Society, the Groller Club of New York, and other such institutions, are concerned with such institutions, are concerned with such subjects. There are no good such subjects. general treatises on them, but, in addition to the publications of the societies mentioned above, several all to discover its origin, and to test periodicals have, at one time or the statements as to the publisher,

another, been pub. to cater for per sons interested. These periodicals, among which may be mentioned The Bookworm, 1888-94; Bibliographica, 1895-7; Le Livre, 1890-89; and Zeitschrift für Bücherfreunde, 1897, have scarry fur Bucherfreunac, 1897, nave not as a rule been long-lived. Information may also be found in The Library, 1893, by Andrew Lang; The Printed Book, trans. from the Fr. of Henri Bouchot by E. C. Bigmore in 1890; Connaissances Nécessaires à un 1890; Connaissances nécessaires de la constitution de la con Bibliophile, 1899, 5th ed., by E. Rouveyre; Graesse's Tresor de Livres ct'Precieux, 1850-69, and Rareskindred works. kindred works. Such things as the histories of printing, book-binding. etc., do not properly come within the prov. of B.; further information will befound in the sev. articles on the subjects already mentioned as included

by the bibliographers of this school. The usual definition of the science of B. is the science of books as such. It thus comprehends the subject and class of the work, the size, the pagination, the type, the plates, the rarity, etc. It will thus be seen that the ideal of bibliographical work is the provision in an accessible form of a comprehensive description of a conv of any book, possessing any typo-graphical, historical, or literary interest, in its original form as first pub., and of any different issues of it. When such a catalogue has been compiled and verified, each individual work could be described by a simple reference. Such an ideal is, of course, impossible at the present time, owing to the enormous quantity of books already printed and being printed every year, and consequently bibliographers are obliged to restrict the scope of their catalogues to the special object for which they are required. Thus catalogues are found required. of the books of a certain author, or of those pub. in a certain period. or of those dealing with special subjects. The standard description of any book generally consists of the following sections: (a) A transcript of the title-page, the colophon (if any), and headings. any (b) . leave number of asurements of such leaves, and the different kinds of type employed, etc. (c) A description of the literary contents of the book, and the extent thereof, etc. If any other point not included in the above requires to be mentioned, as imparting some distinctive or necessary information about the particular work, it is put at the end of the above descriptions.

When a bibliographer wishes to describe a book, he examines it first of all to discover its origin, and to test etc., and to see if it is in perfect condition. He also notices if the type corresponds to the alleged date of the work, and whether any leaves have been inserted from another copy in order to supply omissions. This can order to supply omissions. be discovered by observing whether the 'signatures' of the folios cor-respond as they should do. The ' size ' of a book is the relation of the size of a book is the relation of the size of the separate pages to the original sheet of paper of which they formed a part. Thus when the sheet is simply folded in two the book is in 'folio,' when in four it is in 'quarto,' when in eight 'octavo,' or 8vo, etc. The names of Bs. dealing with the special subjects already indicated will be found in the articles on those

will be found in the articles on those subjects, but among the best known general catalogues, etc., the following may be mentioned: General Catalogue of the Library of the British Museum; Watt's Bibliotheca Britannica, 1824; Heinsius' Allgemeines Bücher-Lexikon; Kayser's Index Locupletissimus Librorum; Quérard's La France Lit-

téraire, etc., etc.
Bibliomancy (Gk. βιβλίον, a book, and µarreía, prophecy) is a means of obtaining omens as to the future, which is widely practised. The method of procedure is as follows: the person wishing to obtain information opens the book at random, and then endeavours to apply the passage displayed to the particular case. The book usually chosen now for the purpose is the Bible; the ancients used Homer or Virgil, the process being then termed sortes Homerice or sortes

Virgilian x.

Bibliomania is a Gk. word used to describe the capricious folly of the book miser, which impels him to book miser, which impels him to acquire books, destitute of literary merit, the rarity of which is their one claim to distinction. The passion is an old one, but the actual word was introduced from the Fr. about 1750, when even among educated people there was a strong desire to possess uncut copies of vellum and first eds. From the of quite obscure works. time of Brandt, however, satire has been freely poured on this fashionable madness, and the kindly ridicule of Abbé Rive, Dr. Ferrier, and others has done much to correct the taste of the bibliophile. The word is also applied to an acute attack of a longing to possess certain books, such as induced the Marquis of Blandford to pay £2260 for the Valdarfer Boccaccio (1471), at the Roxburghe sale in 1812. To quote two other examples of To quote two other examples of purely fanciful book prices, Caxton's Encydos fetched £2350, and at the Ashburton sale in 1897 an original Gulenberg and Fust' Bible (1450) was knocked down to the bidder at £4000.

Bibliothèque Nationale, the French There is national library in Paris. mention of a collection of manu-scripts by Charlemagne, but Charles V.'s is the most famous of the early collections. The library has had many homes, as, for example, at Fontaine-bleau under Francis I. and later in Mazarin's palace. It was finally, Mazarin's palace. It was finally, however, installed in its present buildings (Rue Colbert), erected between 1854-75. There are five depts: printed books (3,500,000), manuscripts (100,000), prints, maps, and coins, each with a room open to the public.

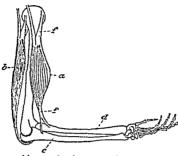
Bibra, Baron Ernst von (1806-78), Ger. writer, travelled in Brazil, Chili, and Peru, and brought home good natural history and ethnological col-Not only did he pub. his explorations in Reisen in Sudamerika, 1854, but wrote also many works on chemistry and some novels remarkable for their excellence of description.

Bibulus, Marcus Calpurnius, was consul with Julius Casar in 59 B.C. His efforts to oppose Casar's agrarian law and other democratic measures being futile, he excited much ridicule by spending eight months of his consulate shut up in his own house. As proconsul of Syria he further displayed his incapacity. He died displayed his incapacity. about 32 B.C.

Bicarbonate, an old name for acid rbonate. The gas carbon dioxide carbonate. (CO2) when dissolved in water is looked upon as carbonic acid, which may be represented as H₂CO₂. If both hydrogen atoms are replaced by a metal the resulting compound is called a carbonate, as sodium car-bonate, Na₂CO₂; but when one hydro-gen atom only is replaced, the result is a bicarbonate, as sodium bicar-bonate, NaHCO₃, the name being due to the fact that the proportion of the carbonic acid group to the amount of sodium is doubled. The term bicarbonate usually refers to bicarbonate of soda, which is useful medicinally as a gastric sedative and antacid. See SODIUM and SODA.

Bice is the name of two pigments, of blue and green respectively. In the natural B., formed with clay mixed with yellow ochre, the blue and green colours are due to the carbonate of copper in the B. The artificially-manuf. B. is not so durable as the natural. B. has long been known to artists under various names, but its use is now dying out. The etymological origin of the name is obscure.

muscle on the upper arm, which serves to flex the elbow; the 'B. flexor crucis' extends along the whole of the back of the thigh and lexes the knee. In popular use biceps generally denotes the muscle flexes the knee. of the arm.



a, biceps; b, triceps; c, ulna; d, radius; ; tendons.

Bicester, a mrkt. tn. of Oxfordshire and the scat of the county courthouse, is situated 11 m. N.N.E. of Oxford. The ruins of Alia Castra (Alcester), probably one of the fortified places built by Plautius, lie a mile and a half to the S.W. of B., on the Akeman Street of the Romans. There are sev. fairs held annually in the tn., at Easter, in June, in August, at Michaelmas, and in December: there are manufs. of rope, clothing, and pale ale. Pop. 3500.

Bicêtre is the name of a noted hospital of Paris, situated on arr eminence on the S. side of the city. Founded by Louis IX, as a Carthusian monastery, it was in the pos-session of John, Bishop of Winchester, in 1290, hence the name of B., a corruption of Winchester. Destroyed in 1632, it was rebuilt, and is now, after having been a hospital and a prison, a home for indigent old men and incurable lunatics.

Marie François Xavier Bichat, (1771-1802), French anatomist and In 1797, he was apphysiologist. pointed lecturer in anatomy, surgery, and experimental physiology at the Hôtel Dieu, and in 1800 he was made made rector of Framlingham, Suffolk. physician. founder of general anatomy. chief w 1800; . 1800;

la Phy mixture of potassium bichromate and action between Hood and De Grasse dilute sulphuric acid upon zinc. The off Martinique. In 1799 he was made mixture is contained in a bottle- rear-admiral, and from 1801-5 was

which shaped vessel in which a zinc plate fixed to a brass rod is placed between two carbon plates. When the cell is not in use the brass rod should be raised and secured by a screw so that the zinc is clear of the exciting liquid. The electromotive force of the cell diminishes rapidly after a short time. so that it is not used in batteries where a current is needed for long periods.

Bickerdyke, John, the pseudonym of Charles Henry Cook (b. 1858), an Eng. journalist, novelist, and sporting writer, born in London. His works writer, born in London. His works include: Angling in Salt Water, 1887; Days in Thule with Rod, Gun, and Camera, 1894; Sea Fishing (in the Badminton Library), 1895; Wild Sports in Ireland, 1897; The Book of the All-round Angler, 1900. He was part editor of Piles and Perch, 1900, and contributed to the Ever Bell. and contributed to the Ency. Brit.

and the Victorian County Histories.

Bickerstaff, Isaac, pseudonym adopted by Dean Swift, when in 1709 he published the pamphlet burlesqueing Partridge, the almanac-maker, whose death he solemnly forctold and proved.

Bickersteth, Edward (1786-1850), a. clergyman of the Church of England, was born at Kirkby-Lonsdale, West-moreland, on March 19. He was a solicitor at Norwich from 1812 to 1815, but his religious tendencies became more pronounced, and he took deacon's orders in 1815, and was admitted to full orders in the same year by the Bishop of Gloucester. He proceeded with his wife on a mission to Africa, and on his return in 1817 was made secretary of the Church Mis sionary Society, a post which he filled till 1830. He became rector of Long Watton, in Hertfordshire, in 1830. and spent the remainder of his life there. He died of congestion of the brain on Feb. 24. He pub. a large number of hymns, sermons, and tracts.

Bickersteth, Edward (1850-97), an Anglican missionary, grandson of above, was born at Banningham, in Norfolk. He went to Delhi in 1877 to be the first head of the Cambridge Mission there, which he founded. He returned to England in 1882, and was He is regarded as the where he remained till 1886. In the

a Bickerton, Sir Richard Hussey 1. (1759-1832), admiral, during a long Bichromate Cell, a voltaic cell in and distinguished career was stationed which the electric current is asso-in many different quarters of the ciated with the chemical action of a globe. He took part in 1781 in the

with Nelson in the Mediterranean been used at various times, from the before Trafalgar. Soon afterwards he was recalled and given a post in the Admiralty, where he rendered valuable service. At different times he was associated with the Channel

Bida, the fortified cap. of Nupe in Northern Nigeria, W. Africa. The Niger flows 20 m. S. Elevation, 450 ft.

Pop. almost 100,000.

Bidar, tn., Nizam's Dominions, India, 75 m. N.W. of Hyderabad. It is noted for manufs. of Bidri ware, 'which are made in a metal composed of a mixture of tin, copper, lead, and zinc. Pop. 14,000.

Bidassoa is the name of a riv. which rises in the mts. round the valley of Bazton in Spanish Navarre, and flows into the Bay of Biscay at Fuenter-rabia, after a course of 33 m. It forms the boundary between Spain and France, and was the scene of several battles in the Peninsular War.

Biddeford, a city in York co., Maine, United States. Has large cotton manufs. It stands on the Saco, Has large which supplies power for factories.

Pop. 18,000.

Pop. 18,000.

Bidder, George Parker (1806-78), engineer, was carried round the country as a 'calculating phenomenon,' until some one, interested in his extraordinary powers, educated him at Camberwell School and Edinburgh University. He was the inventor of the cuint bridge for relivery, and the the swing bridge for railways, and the founder of the Electric Telegraph Company, which was the first of its kind. Victoria Docks was his greatest but engineering achievement, claim to renown rests rather on his faculty for rapid, accurate, and elaborate calculation—a faculty which he was able to exercise fully during his many years' service on parliahis many years' mentary committees. His was the rare gift of visualising figures.

Bidding-prayer (Old Eng. biddan. to pray) is the formula or exhortation to prayer, which is said in England in cathedrals, at university sermons, in the Inns of Court, and elsewhere on special occasions. Such formulæ are to be found in ancient Gk. liturgies, and in Gallican and pre-Reformation liturgies of England. The main char-acteristic of the B., of which the form may vary, is that it directly in-forms the congregation of the object for which they are to pray. It ends with the Lord's Prayer. The B. is commanded to be used before every sermon, lecture, or homily in the canons of the Church of England of 1603; save in the places above men-

11th to the 15th century, have been collected in the Manuale, 1874, a work in connection with the Surtees Society. For further information on the subject, see the Bidding of Prayers Fleet, but his highest office was that before Sermons, written by Wheatley of commander-in-chief at Portsmouth in 1845, and the Church of Our Bioyele, see CYCLE.

Fullers, 1849-53, of D. Rock.

Biddle, John (1615-62), 'the father of English Unitarianism,' was born at Wotton-under-Edge, Gloucestershire. In 1647, he published his Twelve Questions or Aryuments, against the deity of the Holy Spirit. He was imprisoned, but next year published his Confession of haith touching the Holy Trinity, etc., and he followed this by a tract bringing the fathers of the Church to support him. In 1655 B. was banished to the Scilly Is., where he stayed for three years. After the Restoration, he was again brought to trial, and fined heavily. He was unable to pay, and so was sent to prison, where he died. See his Life by J. Toulmin, London, 1791.

Biddle, Nicholas (1786-1844), American financier, was president from 1823-36 of the United States Bank. He resigned his second presidencythis time of the United States Bank of Pennsylvania—in 1839, two years before it ceased payment. The unjust charge of fraud which was brought against him was not followed up. His literary talent led to his being chosen to compile a History of Lewis and Clarke's Expedition to the Pacific

Ocean.

Bideford (' by the ford ') is a seaport of N. Devon, 8 m. S.W. of Barn-staple. It is situated on both sides of the Torridge, 31 m. above its confluence with the estuary of the Taw, and an old bridge of twenty-four arches unites the two divs. of the tn. Vessels of 500 tons burden can come to the quay. B. had formerly a very extensive trade, and is known as the starting-place of Sir Richard Grenville's last voyage, whilst it also figures prominently in Kingsley's Westward Ho! Its manufs. are ropes, sails, earthenware, leather, etc. Pop. 9000.

Bidens is a large genus of Compositæ, of which two species, the burmarigolds, are common to Britain. It received its name from two bristles which frequently surmount the angles of the fruit and serve in its distribu-tion. The British species, $B.\ biparlita$ and $B.\ cornua,\ grow in wet places,$ $while <math>B.\ Becnii$ is an American waterplant.

Bidloo, Godefroid (1649-1713), famous Dutch anatomist and surgeon, born at Amsterdam, died at Leyden. tioned, a collect is now generally sub- | For some time he was professor of anastituted. Forms of Bs. which have tomy at the Hague, and later occupied

the same position at Leyden, where dukes of Nassau. It has manufs, of he also taught chemistry. He was cement, manure, sulphuric acid, and physician to William III. of England. His chief work is the Anatomia corporis human, an elaborate treatise on anatomy in Latin, published in folio at Amsterdam, 1685. It is adorned with 105 plates by G. de Lairesse. These plates were the cause of a great controversy with George Cowper, a London surgeon, who had stolen the plates and used them as his own.

Bidpai, or Pilpay, a legendary Indian philosopher, to whom

from the Sanskrit, means 'master of knowledge'), lived under a king called Dabshelim, by whom he was imprisoned, because of his free condemnation of the royal tyranny. He was later released to discuss the affairs of the kingdom, and was then commanded to write down his advice in Sanskrit in fable form. The fables early became very popular, and the news of them having reached Persia, the King Khosrū Anushirvan (A.D. 531-579) sent Barzoi, his court physician, into India to make a collection of them, and to translate them into Pahlavi. The physician made this translation under the title Kalilah and Dimnah from the names of two jackals in the Sanskrit version. From the Pahlavi, a translation into old Syriac was made, and the same version was again made the basis of a more important translation about A.D. 750. Abdullah - ibn - al - Mokaffah turned it into Arabic, and it was from this version that the fables were translated into most of the European languages. The chief sources of the Fables of Bidpai are the Pancatantra and the Hitopadesa. The stories,

The lables were much in common. translated into Hebrew by the Rabbi Joel, and from this work was translated the Directorium Humana Vila of John of Capua, a converted Jew. This was translated into Italian, and from the Italian into English by Sir Thomas North, 1570. There have been about twenty English translations during the last century. See J. ning of the G. N. Keith-Falconer's Kalilah and of 70,000. Dimnah, Cambridge, 1895.

stucco. Pop. 20,000.

Biel, the Ger. name of Bienne, is a Swiss tn. in the canton of Bern. 20 m. N.W. of that city. Overlooked by the Jura, and situated on the Lake of Bienne, it is most pleasantly situated. Gardens and villas encircle the town. which is composed of an old quarter and a modern quarter, the one semimediæval in its irregularity, the other very modern in its regular elegance. From 1262 to 1352, B. belonged to the bishops of Basel: in 1352 it was allied to Bern, and was a free and independent city until 1798, when France obtained it, but in 1815 it was again united to Bern. Its industries are watch-making, cotton-

spinning, cigar-making, tanning, and dyeing. Pop. 26,000.

Biela, Wilhelm. Baron von (1782-1856), Ger. astronomer, devoted his life to the fine arts and to astronomy. He is famous because of his discovery of a comet, which bears his name, This comet, after appearing in 1772 and 1805, was seen by B. at Johannis-burg in 1826, ten days before Gambart saw it at Marseilles. Its return in 1832 caused

was believed it Bielaya, a ri

Bielaya, a rr m, long, rising gov. of Orenburg, joins the Kama. Bielefeld, a walled town in the Prussian prov. of Westphulia, 27 m. S.W. of Minden. It is picturesquely situated on the small riv. Lutter at the foot of the Teutoburger Forest. The anet. walls, which withstood their last siege in 1673, have been con-verted into broad promenades. The verted into broad promenades. old castle of Sparenburg is the most notable building. There are a large number of Protestant deacons and deaconesses in the town engaged in philanthropic work, whilst the colony of Bethel is situated at a distance of 7 m. from the town. This began as a

home for people subject to epileptic fits, but now includes houses for the training of deacons and deaconesses, and a workmen's home. The town is the centre of the linen industry of Westphalia, and the yearly output of linen is of considerable value. are also large bleaching grounds, and the bleaching industry is very active. Other manufs include silk, velvet, sewing-machines, leather, damask, soap, and meerschaum pipes. The tn., which dates back as far as the beginning of the 11th century, has a pop.

Bieleff, or Bielev, a tn. of European Russia, in the gov. of Toula, situated on the R. Oka, 160 m. S.S.W. Bilebrick, a Prussian tn. on the r. b. of the Rhine, 3 m. S. of Wiesbaden in the province of Hesse - Nassau. It was formerly the residence of the

Bier

It became in 1468 the cap. of a vassal principality of Lithuania, but was captured by the Russians in 1494. It

has a trade in grain. Pop. 10,000.
Bielena, a tn. of N.E. Bosnia, near
R. Save, 75 m. N.E. of Sarajevo; R. Save,

pop. 10,000. or 'white town,' Bielgorod, called after a chalk hill in its neighbourhood, is a city in the gov. of Kursk, Russia, and 72½ m. S. of it. Situated on a sloping bank of the Northern Donets, it is quite picturescent. Though it has true activated. esque. Though it has two cathedrals,

esque. Though it has two cathedrals, the see is now transferred to Kursk. There are chalk quarries. Pop. 21,850.
Bieli Kliuch, tn. of Transcaucasia, Russia, on Abure plateau, by R. Khram, 22 m. S.W. of Tiflis. A noted summer resort. Pop. 20,000.

Bielitz, a tn. of Austrian Silesia, situated on the l. b. of the Biala, 18 m. N.E. of Teschen. It is connected by a bridge with Biala in Galicia. It has dyeworks and a trade in woollen goods, wine, and salt. in woollen goods, wine, and salt. Pop. 18,000.

Biella, a tn. in the Italian prov. of Novara, situated on the R. Cervo, 38 m. N.E. of Turin. It has been It has been noted for the manuf. of woollen stuffs for many hundred years, and is the see of a bishop. Corn, rice, and hemp are also grown. The fields are irrigated

are also grown. The helds are irrigated by small canals, a system which prevails in this part of the country.

Bielo-ozero (' the white lake ') is the name of a lake in the Russian gov. of Novgorod, situated in 60° 10' N. lat., and 37° 30' E. long. The lake has a length of 25 m. and a breadth of 20 m., its area being about 432 sq. m. Its waters flow into the Sheksha R., and thence to the Volga.

Bielopol, a Russian tn. in the gov. of Kharkov, on the Vira, 170 m. E. of Kiev by rail. Founded in 1672 there

are brickworks, tanneries, and distileries. Pop. 17,000.

Bielostok, or Bialystok, a tn. of Russia, on borders of Poland and Lithuania, 45 m. S.W. of Grootno. It is a growing industrial centre in woollens, cloths, silk, etc., with trade in grain and wood. A massacre of Jews occurred here in 1906. Pop. 80,000.

Bielschowitz, tn. of Silesia, Prussia, 29 m. N.E. of Ratibor. It has coal mines and zinc-smelting works. Pop.

7394,

Bielshöhle is the name of a cave situated in the Harz Mts., Germany, in the neighbourhood of Rübelaw. It

is noted for its stalactites.

Bielsk, a tn. of European Russia, in the gov. of Grodno, situated 112 m. N.E. of Warsaw. It was the scene of a Polish victory over the Russians in 1831. Pop. 10,000.

Bielski, Martin (1495-1576), Polish

chronicler. His Kronika Polska was the first book of chronicles written in the Polish language, and is the first important history of Poland. The work, which is still valued, was continued by his son.

Bieltzi, a tn. situated in the Russian gov. of Bessarabia, on the direct line of railway from Czernowitz to Odessa, and about 80 m. from Kishinev. There are brickworks and soap factories, also a trade in cattle and horses. Pop. 19,000.

Bien-Hoa is a mountainous prov. of Cochin China. It possesses a very healthy, equable climate. The cap. is B., about 16 m. f

municating with canal. There a: Bienne. sec Biel.

Biennials are plants which require two seasons of growth to produce their flowers and fruit, and differ from annuals only in this fact. In the first year they produce only vegetative shoots, in the second, flowers, fruits, and seeds, after which they perish. Examples are hollyhocks, sweet-williams, and foxgloves.

Bierley, North, a township in the E. division of the W. Riding of Yorkshire. Its pop. is 15,620, and it has large coal and iron resources.

Congestion Bier's Treatment. method of dealing with certain diseases by inducing an increased supply of blood in the part affected. Strictly speaking, the congestion treatment refers to the method con-sisting of the retention of venous blood, but Dr. Bier's name has also been associated with certain methods for increasing the supply of arterial blood. His general name for the latter treatment is the artificial production of Active Hyperæmia, as opposed to Passive Hyperæmia artificially produced, which includes all methods of hindering the departure of the venous blood from the part affected. Both treatments are based on the principle of assisting nature by increasing the supply of the blood, and consequently of those agencies whose function it is to resist and overcome the disease-producing elements in the particular part of the body affected. Dr. Bier points out that hyperæmia, or an increased supply of blood, is spontaneously produced whenever there is an increased demand for the functioning of any organ. Nature's method, however, is often too slow. Though it may appear that the purpose of the healing agencies is the ultimate well-being of the total organism, we are hardly justified in supposing that their activities will always have that desirable result. The discase-resisting corpuscles are as ruthless in their treatment of affected but unreplace-

why wounds are stitched, abscesses lanced and drained—that the healing process may be shortened and the strain on the general health lessened by artificially procuring the best conditions for the work of the body's natural healing powers. In like manner Bier's treatment proposes to increase the hyperæmia which nature has already produced in dealing with a morbid condition of any part, the fundamental principle being that the curative properties possessed by certain elements in the blood should be present in the highest possible intensity compatible with the well-being of the organism as a whole. The principal method of producing active or arterial hyperemia is the applica-tion of heat. The apparatus used by Dr. Bier and his assistants for this purpose consists of hot-air boxes adapted to enclose the different extremities, the openings being well-packed with fire-proof asbestos cotton. The source of heat is a Bunsenburner or a spirit lamp which may be regulated. The burner is placed beneath a chimney which communi-cates with the hot-air box, in which a shelf is interposed between the direct hot current and the limb. mometer is fitted to the box so that the temperature may be continually under observation and moderated if necessity arises. It is important that the heat should never be uncomfortable to the patient, and unless sensibility is diminished by disease, the operator must consult the patient as to the degree of temperature maintained. The usual effect of the treatment is to produce a copious perspira-tion which must be appropriately dealt with when the application is Slight burns some discontinued. times occur, and there is also a possibility of the skin being discoloured by a network of brownish lines, probably due to decomposed red corpuscles; this, however, soon disappears. treatment should only be adopted on the advice of a physician experienced in hot-air practice, as it entails con-siderable demand upon the general strength, and in women has produced irregularities and abnormalities in menstruation. For these reasons, Dr. Bier has developed a passive or venous hyperæmia treatment, where the object to be attained is the retention of blood in the affected part for a longer period than the normal. This is usually effected by the application of a bandage or a ligature of rubber tubing at a part which the experienced operator has found to be suitable. The constriction should not be so intense as to cause discomfort; indeed.

able tissues as they are in the de-the comfort of the patient is a reliable struction of inimical germs. That is sign of the effectiveness of the treat-The blood is, as it were, encouraged to linger in the affected part. so that its functions may be more effectively performed. The treat-ment is to be intermitted at times, and the place of constriction altered if possible. The use of cuppingglasses, in which the air is rarefled by heat, and of more elaborate suction apparatus, also produces hyperemia; though it is likely that such hypermemia is partly arterial and partly venous. The effects claimed for the treatment are that it acts as an anodyne, diminishing pain in the affected part, and that injurious bacteria are more readily destroyed than in normal circulation. In the use of suction apparatus, an undoubted advantage has been demonstrated in procuring mobility of stiffened joints, the in-terior of the suction chamber being so arranged that the pressure of the atmosphere may be brought to bear in a given direction with a gradation of intensity, under a delicate control impossible by any other means. For tuberculous joints passive hyperemia only is used, as in active hyperæmia there is danger of tuberculous matter being carried to healthy parts of the Under the congestion treatbody. ment many cases of startling cure

have been reported.

Bierstadt, Albert (1830-1902), a Ger. artist, was born at Solingen, near Dusseldorf, but at the age of two was taken to America by his parents. He returned later to Europe and studied at the Academy of Dusseldorf from 1853-57. He visited Switzerland and Italy, and returning to America took part in General Landers' expedition across the Rocky Mts. As a result of this trip his picture of 'Landers Peak' attracted some attention at the Paris Expositio

generally vigour an colouring. T

colouring. They achieved much success in Europe, and in France especially. B. was decorated by several continental countries, and created a member of the St. Petersburg

Academy.

Biesbosch, the name of a dist. of Holland on the borders of the provs. of N. Brabant and S. Holland. Originally dry land, it now consists of a huge marshy lake with numerous islands. Its present state is due to the bursting of the dykes on Nov. 18, 1421, when 180 sq. m. were submerged, seventy-two vils. lost, and 100,000 people drowned. Of these vils. over forty have been reclaimed. The B. is connected with the North Sea by means of the Haringvliet and Hollandsch Diep.

The term is usually applied to a variety of Roman chariot, which was commonly used in processions and in races. It was two-wheeled and high The back, at which the in front.

charioteer entered, was open. Bigamy. In English law, by the Offences against the Person Act, 1866, sec. 57. Whosoever, being married, shall marry any other person, during the life of the former husband or wife. whether the second marriage shall have taken place in England or Ireland or elsewhere, shall be guilty of felony, and being convicted thereof, shall be liable to be kept in penal servitude for any term not exceeding seven years; but no offence is committed: (1) If the second marriage is contracted by a person not a British subject outside England and Ireland; (2) If the former husband or wife has been continually absent for seven years, and not been known to be living by the person marrying a second time; (3) If the first marriage has been dissolved by a divorce or a decree of nullity; (4) If there was a bona fide belief based on reasonable grounds that the former husband or wife was dead. To support a charge of bigamy a valid first marriage must be proved; thus if a man marries a woman while his first wife is alive and after the first wife's death marries a third, the last marriage is not bigamous, for his second marriage was a nullity. In Scotland, by the statute of 1551, the offence is one of perjury: at common law B. is punishable as an offence with imprisonment.

Bigelow, Erastus Brigham (1814-79), American inventor, contrived, whilst still a boy, a loom for weaving suspender webbing and piping cord. His other inventions were a machine for making knotted counterpanes and a power-loom for the carpet weaver, which has considerably cheapened

carpets.

Bigelow, Jacob (1787-1879), physician and botanist, graduated in 1806 at Harvard University, where he was afterwards professor in more on his original research in botany, as get into their well as on his introduction of single-follow days of well as on his introduction of singleword nomenclature in the American trackers. Pharmacopæia, 1820.

Hard work, and often privation; a Bigelow, John, an American jour-leave waggon and team may cost £200 nalist and statesman, was born at Malor or more, or can be hired at perhaps den. New York, Nov. 25, 1817. After £30 per month; horses, unsalted, are graduating at Union College in 1835 fairly cheap, but if salted, are cheaper he practised as a lawyer in New York; at three times the price. Drivers and for some time, from 1839. He later horse-boys must be hired, and protook up journalistic work, and from visions and medicine taken in good

Biezhetzk, a tn. of Tver, Russia, 1849-61 he was managing editor and, 70 m. N.W. of Tver; pop. 9090. with William Cullen Bryant, joint Biga, vehicle drawn by two animals. owner of the New York Evening Post. with William Cullen Bryant, joint owner of the New York Evening Post. Amongst the offices which he filled in his political career were those of United States Consul at Paris from 1861-64, Minister to France in 1864-67, and Secretary of State for the State of New York from 1875-77. His literary works embrace books of travel, biography, history, and occasional political discussions. His best work is his edition of Franklin's Autobiography and Complete Works, to which he added notes based on personal knowledge: this ed. supplanted the ed. of Jared Sparks in accuracy

the ed. of Jared Sparks in accuracy and completeness. He also pub. a brief biography of his friend and associate, William Cullen Bryant, and was an intimate friend and the literary executor of S. J. Tilden.

Bigelow, Poultney (b. 1855), American author, b. in New York; educated at Yale and Columbia Law School; called to the bar in the Supreme Court. New York, 1882. During 1875.6 be hed made a journey round Court, New York, 1882. During 1875-6 he had made a journey round the world, and he continued to travel largely, making a special study of tropical colonisation and becoming intimate with the German emperor. He lectured at sev. universities on modern history and colonial administration; was correspondent for the Times (London) during the Spanish-American War, 1898. His works include The German Emperor and his Eastern Neighbours; White Man's Africa, 1898; Children of the Nations,

1901, etc.

Big Game. The pursuit of the larger fauna has had a fascination for men in all ages; ancient cave-dwellers, Assyrian kings, and modern sportsmen have all taken pleasure in hunting, and in recording their adventures. But to-day, instead of finding the bear, elk, or aurochs close at hand, the European hunter must go far afield if he desire to pursue large game. Even in Africa things have greatly changed. When the Great Trek took place, and long after, there were vast regions in S. Africa where lions and buffaloes were numerous, but now only small game can than one capacity. For more than be found; the larger animals hav forty years he practised medicine in retreated, and long journeys with Boston, but his title to renown rests horse and ox-waggon are needed to

trackers. All hard work, and often privation;

quantity. In East and Central Africa | always takes place over rough country. native carriers are necessary, also native hunters, and in swampy districts all the work must be done on foot, which involves great fatigue and almost a certainty of sickness. For Central and East Africa the best start will be by rail to Mafeking or beyond, or by sea to Beira, for the lower Zambesi, or to Mombasa for British East Desi, or to abundance to Live and include the lion, elephant, hippopotamus, rhinoceros, giraffe, buffalo, eland, and many species of antelope. are especially plentiful British East Africa and the Congo State, as also elephants and rhinoceri. In 1907 Col. Patterson saw sixteen of the latter at one drinking-place. Herds of buffalo were once frequent in Cape of buildlo were once irequent in cape Colony, but have been killed off or driven N.; they were greatly thinned also in 1890 by a kind of rinderpest. They are now to be found mostly among the swamps of the Zambesi and Limpopo, and hunting them is difficult and dangerous. A wounded buffalo will hide and try to surprise the hunter, and even a 'dead' one must be approached with caution. There are close times for shooting, yarying in the different states, and licences run from £1 10s. for small game up to £25 or more for the larger animals. India has always been famous for its wild animals, but money, and above all, influence, are necessary for enjoying the best sport. Without these one might spend many months in a 'tiger country' and see nothing, but with them India affords splendid chances. There is an immense variety of game, tigers, panthers, leopards, a few lions, wild boar, rhinoceri, and buffalo, besides deer and gazelles from the lordly Sambhur The tigers are un-one was shot 2½ in in length, veighed 540 lbs. downwards.

ar old are 4 or 5 are to be found

in many parts of India, but especially in the Terai jungles (along the foot of the Himalayas), and in the Sunderbunds. They are generally shot from elephants, but sometimes from trees, towards which they are driven by beaters. Lions are now only found in the W.; they are sometimes very large, quite equal to those of Africa. Panthers and leopards are numerous: the snow leopard of the Himalayas is one of the finest prizes a sportsman can secure. Rhinoceri are found in can secure. Rhinoceri are found in the Terai and the Sunderbunds, and the gaur, or Indian bison, in the Sátpurá and other mountain ranges. One of the most noted sports of India is 'pig-sticking,' i.e. hunting the wild bear is hunted by men on skis, with boar on horseback with spears. This hounds in leash. The bear has keen

and requires pluck, hard riding, and dexterity; a wild boar at bay is a dangerous opponent. The Indian The Indian buffalo, living in swampy districts overgrown with tall reeds, has to be hunted on elephants, but sometimes in the Central Provinces the reeds are set on fire, after which the buffalo may be pursued on foot. The quarry itself is somewhat dangerous, but malarial fever is more to be dreaded. Up in the Himalayas those who enjor the toilsome delights of mountaineer. ing may stalk the markhor, ibex, and wild goat; brown and Himalayan bears also, and snow leopards, are sometimes met with. At a great altitude (10,000 to 17,000 ft.), the bharal. or blue wild sheep, needs expert stalking, and furnishes excellent mutton. Pamir sheep are said to stand 4 ft. high, and weigh over 400 lbs., and the argalis, or Ovis ammon of Tibet (of which there is a specimen at South Kensington), is nearly as large as a donkey. Burma also affords plenty of sport, its fauna including the elephant, rhinoceros, tiger, and leopard, besides innumerable deer. Elephantshooting, however, isstrictly prohibited both here and in India. Good shooting may be had in some parts of Europe, especially Russia, Scandinavia, and the Alps. In the former wolves and bears are plentiful, and their skins are much prized. Bears are sometimes tracked down, about Nov., to their winter hiding-places, and not infrequently the tracker, having located several, goes off to the city and sells his discovery to some sportsman. Then after a solder sportsman. Then there a sledge journey of many days, the hunter, with his guide and probably a dog, has a long tramp over the snow to the place of hibernation. The animal is waked out of his sleep, comes out with a rush, and either bolts or charges his assailants. Further S., in the Caucasus, wild boars abound on the lower slopes, and bears and bison also are found Higher up there are chamois, ibex, and other mountain game; but though sport is plentiful, it is c difficult also fou often cal.

correct, the cattle of

land. A Caucasian wild buil has been killed which stood 6 ft. high, was 10 ft 1 in in length and 8 ft. 4 in.

ibex are stalk the Tyrol, the Pyrenees. In

white cattle, the last representatives of the ancient quarry of the men of the Stone Age. lingered much longer in Scotland than in England; there is a record of a fierce bear being killed by one of the Gordons in the 11th century, and wolves are said to have been numerous; and destructive down to the 16th century. In N. America the hunter may find abundant sport, though the, great herds of bison have vanished from the prairies; they were mainly slaughtered by the Indians, who killed found they could sell their 'buffalo-robes' to white men, they slew at a still greater rate. The last big herd was destroyed in 1883. The black bear also is becoming scarce, having been killed for his fur, but in the Rockies grizzlies and other bears are still to be found. Many sportsmen declare hunting the grizzly to be one of the most dangerous sports in the world. He has keen scent and m the worth. He has keen seent and hearing, is quick, savage, and tremendously powerful, having been known to carry a wapiti carease, 1000 lbs. in weight, a considerable distance. He is generally caught by baiting with the body of a deer or other animal; when this is found to have been mayled (nothers buried). crust-hunting, when the surface of the snow is sufficiently hard to bear a man on his snow-shoes, but gives way under the sharp hoofs of the heavy animal, who is thus quickly overtaken; the caribou having larger feet can more easily escape. Of late lengthy street, and has a cruciform years Newfoundland has become noted church with a tower in the middle years Newfoundland has become noted as a shooting ground, but in Eastern Canada as a whole B. G. is becoming scarce. The 'bighorn,' very rare elsowhere, is now preserved in British Columbia and Kootenay; it is difficult to stalk, there being always a sentinel on some high peak, constantly on the watch. Musk-oxen are found in the N., and some bison, and the Alaskan of the five. It bears are almost as large as the give much sport. But are immensely eighbourhood, which send their prostrong; Captain Markham found one H

scent, but poor vision, and keeps to windward if he can; when cornered, long, and weighing 3 to 4 tons, which he is dangerous, and not least so when apparently dead. Bears in Norway may be hunted either with a rifle or harpoon; and some men have found islands the only large wild animals arctic sport fascinating, but it is left are the red deer of Scotland and Exmoor, and the Chillingham herd of any other. There is good shooting in white eartier is presented but the country is learned. any other. There is good shooting in S. America, but the country is largely unexplored, and extremely difficult. Bears and wolves The chief animals are the jaguar, puma, many kinds of smaller game, including wild pig, and on the plains there are herds of wild cattle.

Armament. — For weapons, following are among the most used. For large animals, the 450 Express and the 577; for the very largest a double 8-bore rifle. For smaller game the 400 Express, the 250 Lec-Met-ford, and the 303 Mannlicher are very effective; in N. America, a Winchester is perhaps better, as ammunition for it is obtainable everywhere. A couple of good hunting knives, one for killing and one for skinning, are also

needed.

The bibliography of game shooting is immense. A few selections must here suffice, but a whole library may be consulted at Mr. Rowland Ward's, 166 Piccadilly. F. C. Selous, A Hunter's Wanderings in South Africa: H. A. Bryden, Kloof and Karroo; W. C. Harris, Wild Sports of South Africa; hearing, is quick, savage, and tremendously powerful, having been known to carry a wapiti carcase, land; Lt.-Col. Patterson, In the Grip 1000 lbs. in weight, a considerable of the Nyika; Stigand. Big Game of distance. He is generally caught by baiting with the body of a deer or other animal; when this is found to have been mauled (perhaps buried), the hunter hides, and watches for the bear's return. Sometimes he is tracked with dozs, who distract his attention, and afford an opportunity adventures; Theo. Roosevelt, The for a shot. Canada is rich in game, Wilderness Hunter; W. R. Kennedy, moose and caribou being the largest; Sport in Newfoundland; Baillie-Grohtness are also found in some of the man, Camps in the Rockies; J. these are also found in some of the man, Camps in the Rockies; J. States. The moose is often taken by Turner-Turner, Three Years' Hunti-crust-hunting; when the surface of ing and Trapping; J. Lamont, Yacht-the snow is sufficiently hard to bear ing in the Arctic Seas; F. Nansen Farthest North.

Biggar, a small tn. in the upper ward of Lanarkshire, 25 m. S.W. of Edinburgh. It consists mainly of one

Pop. 1700.

Biggarsberg, a range of mts. in S. Africa. It is practically an easterly extension of the Drakensberg Mts., and it separates the northern part of Natal and the dist. of Newcastle from the rest of the colony.

Biggleswade, a market in. in Bed-

agricultural implements and motor winged seeds. The most interesting

vehicles: pop. 6000.

Bigha, or Biga, a tn. in Asia Minor, situated on the Bolki, about 18 m. from its entrance into the Sea of

Marmora.

Big Horn, a navigable river of e United States, rising in the ocky Mts., near Fremont's Peak in the N.W. of Wyoming. It is the largest affluent of the Yellowstone largest amuent of the readwistons R., and is called Wind R. in its upper course. It is joined by the Little Horn R. at Fort Custer, to which point it is navigable. It traverses a south-western France, in the prov. of mountainous country in a northeasterly course for about 450 m.

Big Horn is the name of a co. in the N.W. part of Wyoming, drained by the Big Horn R. and its tributaries. On the E. are the Big Horn Mts., on the W. the Shoshone Mts. Stockraising and agric. pursuits are carried on, and a system of irrigation is generally practised. The cap. is Basin. The dist, has an area of 12,226 sq. m.

Big Horn is the name of a settle-ment in Custer co., Mont., U.S.A., situated at the confluence of the Big Horn and Yellowstone rivs., 240 m.

E. of Butte city.

Big Horn Mountains are a range of mts. lying principally in the northern part of Wyoming, on the E. of the Big Horn R. They are composed of ancient sedimentary rocks with a granitic nucleus. The range runs in a north-westerly and south-easterly direction for nearly 180 m., and has a number of summits over 9000 ft., covered by perpetual snow. The Sioux, the most belligerent of the American Indians, had their fastnesses in these regions for a long time. In this district, 15 m. to the S. of Fort Custer, occurred the famous massacre of Big Horn, in 1876, when 250 men under General Custer were were annihilated.

Biglow Papers, the title of a very humorous philosophic poem by James

Russell Lowell.

Russen Lowell.

Bignonia. a genus of plants of the Bignoniaceæ, named by Tournefort after the Abbé Bignon, librarian to Louis XIV. All the species are splendid plants while in blossom, most of them are climbers, and they are natives of Ar climbs by met tendrils, B.

sharply-clawed tenurus.

Bignoniaceæ, a natural order of dicotyledonous trees or shrubs, found chiefly in Brazil, but also in Africa and America. They are nearly all twining plants with hermaphrodite, zygomorphic flowers, five joined sepals, five joined petals, four didynagenera are Bignonia, Tecoma, Catalna. and Eccremocarpus.

Bigod, Sir Francis (1508-37), rebel. took a degree at Oxford. For a little he served Cardinal Wolsey, but was

entangled in the Pilgrimage of Grace, undertaken as a protest against Henry VIII.'s church reforms. He was hanged at Tyburn because he was a leader in the ineffectual rising of Beverley. Some of his letters may be seen at the Public Record Office.

Bigorre was formerly a sub-div. of Gascony. It now forms part of the dept. Hautes-Pyrénées. The cap. is Tarbes; other tns. are Vic de Bigorre.

Luz, and Lourdes.

Big Rapids, a city and cap. of Mecosta city, Michigan. It is situated on the Muskegon R., 55 m. N. from the city of Grand Rapids. It has an important trade in lumber, and there are iron foundries, mills, and furniture factories. Pop. 5000.

Big Sandy River, a river of Tennessee which runs into the Tennessee R. in Henry co., at the point where the Louisville and Nashville Ry, crosses the Tennessee R. It has a length of about 100 m.

Big Sandy River, a river of Wyoming, which runs into the Green R. 22 m. N. of Bryan, after a course of about 100 m.

Big Trees, a post-office in Calaveras, California. It has an alt. of 4600 ft. Its famous grove of sequoia trees, over

300 ft. high, gives it its name.

Bihae, or Bihaez, a strong fort. tn. in Bosnia, situated on an Island of the Unna, 65 m. W. of Banialuka. Its possession was often contested during the Turkish wars. Pop. 3400.

Bihar, see Behar.

Bihar is the name of a range of mts. on the borders of Hungary proper and Transylvania. The range, of which the highest peak is B., or Cucurbeta (6000 ft.), contains the sources of the head-streams of the Koros, and on the eastern side those of the Aranyos River.

Bihari, Alexander (1856-1906), a Hungarian painter, born at Grosswar-dein; educated at Vienna and Paris, under J. P. Laurens. His works deal mainly with national peasant life in the dists. of Hungary round Szolnok.

in before the easure Trip on at Supper on Roumanian

Funeral.'

Bihe, the na and town in situated about

mous stamens, two carpels superior it lies at an alt. of 5300 ft. above the and usually bilocular with numerous level of the sea, and has a sufficiently

tion of corn and owning the kingdom, of which Kanjombe is the kingdom, of kingdom, of kingdom, of kingdom, of kingdom, and kingdom, of which means poison. It is specifically applied to the extract of the continum ferox, which was applied to the capacity of the capacity applied to the capacity of the capacity applied to the capacity of the cap Krishna, and Rama, besides other fine buildings. It was founded in 1336, and was a flourishing city when

Bijapur, or Bajapoor, a city of and an educational centre. British India, in the Bombay presi-Bilara, a tn. of India in dency, situated on a trib. of the Krishna, and 245 m. S.E. of Bombay. It was a flourishing city in the time of the Moguls, and now consists of two parts, the fort on the E. and the old city on the W. It is one of the most picturesque collection of ruins in India; all the remains of the former Mohammagnificent buildings are medan, save for one Hindu temple. very early

Bijawar, a native state of India in the agency of Bundelkhand. The tn. of B. is situated in 24° 37' N. lat., and 79° 31' E. long. The title of the chief, who is a Raiput of the Bundela clan, is Maharaja. The state came under British administration in 1901. Its area is 974 sq. m., and its pop.

135,000.

Bijayanagar, a deserted city of S. India, in Madras, founded in 1336, and sacked by Mohammedans in 1564.

Bijbharu, or Bijbahav, a tn. in the state of Kashmir, on the R. Jhelam, 25 m. S.E. of Srinagar.

Bijnaur, or Bijnor, a tn. and dist. in the N.W. Provs. of British India, in the Rohilkand div. The tn., which is 3 m. from the l. b. of the Ganges, has a trade in sugar, and an Eng. high school for boys; pop. 19,000, area of the dist. is 1898 sq. m.

Bikanir, a native state of India, in the Rajputana agency. The Mahathe Rajputana agency. The Maha-raja Ganga Singh, who succeeded to the throne in 1887 at the age of eight, has been intrusted with full powers. Coal has been found in the dist. The Spain, now called Calatayud. In chief industries are camel-rearing and anet, times it was celebrated for the the carving of ivory and gold brace-lets and ornaments. The area of the state is 2309 sq. m., and the pop., greatly reduced by the famine of 1899-1900, in 1901 was 584,000. The tn. of B. manufs. blankets and candy, offenders on board ship. and has a pop. of 60,000.

born in 1835. He drew his inspiration chiefly from the Klephtic songs, and His he used the Epirotic dialect.

mild climate to allow of the cultiva- imagination, which have caused them tion of corn and other crops. The to be highly esteemed by the Greek

'Aconitum ferox,' which was applied to arrow-heads, etc. This plant grows in the Himalayas and Nepaul.

Bikrampur, an anct. tu. of Dacca. it was sacked by the Mohammedans Bengal, India; formerly the seat of in 1564.

gov. of the Hindu kings of Bengal,

Bilara, a tn. of India in Jodhpur. Rajputana, situated on the R. Luni.

Bilaspur, a dist. in Central Provinces, British India, with an area of 7798 sq. m. The cap. is B., about 250 m. N.E. from Nagpur by rail. The products are rice, wheat, cotton,

Bilbao, a picturesque, well-built tn. the cap. of the Spanish prov. of Biscay, on the navigable R. Nervion. The tn. lies in a plain a few m. from the sea encircled by mts. Three bridges span the riv. at this point, and B. has sev. fine churches, two beautiful promenades, a theatre, a marine school, etc. It owes all its prosperity to the exceedingly large deposits of iron-ore in the vicinity, of which about 5,000,000 tons are annually exported, mainly to Great Britain. Coal and coke are the principal imports, as smelting is also carried on, and pig-iron exported in considerable quantities. Among the other industries are the manuf. of steel, tin-plate, chemicals, glass, and paper; ship-building is also carried on. The tn. has the largest dry dock in Spain, and in addition another dry dock and two graving docks. Pop. 90,000.

Bilberry, or Vaccinium Myrtillus, is plant belonging to the Ericaceæ, which is found on moors and hilly It has deciduous woodland dists. leaves and edible blue berries. Other

manuf. of weapons, and had also baths, called Aque Bilbiliane. In the time of the empire it had Augusta added to its name.

Bilboes, fetters formerly used for fenders on board ship. This word. and bilbo, a sword (both Shake-Bikelas, Demetrius, a Gk. poet, was spearian), were derived from Bilbao. or Bilboa, noted for its iron and steel. Bilderdijk, Willem (1756-1831), a

he used the Epirotic dialect. His Dutch poet, was born at Amsterdam, poems are characterised by much An accident in his youth compelled grace of style and an extremely vivid him to give himself up to study, and

try which he retained throughout life. He studied at Leyden, and after taking his Doctorate of Law degree at that university. he started practice at the Hague. When, in 1795, the French invaded Holland, he refused to submit to the new administration and quitted the country. After a visit to Germany, he took up his residence in London. Here he had a discreditable love affair with one of his pupils, Katharina Schweickhardt, whom he married in 1802, having divorced his first wife. This took place in Brunswick, where she had followed him, and four years later his friends per-suaded him to return to Holland. Here he was well received by Louis Napoleon, who made him his librarian. On the abdication of Louis, B. fell into great poverty, in which he He was a voluminous writer. and his works are conspicuous for command of language. Of nearly a hundred works which he wrote, we may name: Buitenleven, 1803; De ziekte der geleerden, 1807; De ondergang der eerste wereld, 1820. Bile, a fluid secreted by the liver. Human B. is yellowish brown or green in colour, is of a viscous nature, has a sp. gr. of 1010 (water = 1000), a bitter taste, an alkaline reaction, and a sickly odour. The quantity secreted by the liver averages 500 to 600 grains per 24 hours, but may amount to as much as 2400 grains. B. consists mainly of B. salts and B. pigments, with small quantities of fats, cholesterin and lecithin. The most important B. salts are sodium glycocholate and sodium taurocholate. The pigments are biliverdin, which is green in colour, and bilirubin, which is reddish. The former is most abundant in herbivorous animals, the latter in flesh-eaters, and the colour of the B. is determined by the relative propor-tions of these pigments. Both are waste products of the used-up hemoglobin in the blood, the iron from which is, however, retained for further use. B. is secreted from the blood by the liver; some of it is temporally stored in the gall-bladder, while the remainder passes through the common

B. duct to the duodenum, the first part of the small intestine. B. in itself is not a digestive juice, but certain of its salts promote greater

activity in the pancreatic juices, and aid in the absorption of fats and fatty acids. The production of B. is practi-

cally continuous, but is stimulated by the processes of digestion. If by any

means it is prevented from entering

the intestine, digestion may proceed

without much disturbance to health. If, however, excess of B. in the liver

he acquired the habits of vast indusblood, the condition known as jaundice is produced; the tissues are coloured yellowish by the B. pigments, and there is general derangement of the system. A bilious allack is only indirectly connected with B.; catarrh is set up by the ingestion of unsuitable or too abundant food, and sickness, headache, and giddiness result, with vomiting of food and bilious matter. Purified ox-bile has been used as an aperient and antiseptic. The B. of oxen which have died of rinderpest has been injected in cattle in S. Africa for the prevention of that disease, and the B. of serpents is looked upon as a partia antidote to their poisons.

Bilejik, a tn. of Asia Minor in the vilayet of Brusa. It has a pop, of 5000, and is situated 100 m. to the S.E. of Constantinople.

Bilge, sec Shipbuilding.

Bilgram, a tn. in the United Provinces, India. It is situated in the Oude prov., about 50 m. N.W. from Cawnpur. There are the ruins of a Cawnpur. There a temple of Srinagar.

Bilharzia (Distomum or Gynaco-

all other trematodes are hermaphrodite, in B. the male carries the female in a gynecophoric canal formed from two folds of skin on the ventral surface. Pairs so united are found in the abdominal vessels both in men and apes, and cause hæmaturia, inflammation, etc., by the deposition of ova in the vessels of the nucous membrane of the intestines, etc. They occur from Egypt southwards to the Cape. The embryos are ciliated, but their life-history is unknown, as is also the exact cause of infection by them.

Bilin, a tn. in Bohemia, Austria, m. S.S.W. of Teplitz. It has two castles, one, that of Prince Lobkovicz. having a collection of arms and minerals. B. exports alkaline mineral waters, and sugar is manufactured. Pop. 8500.

Bilin is a riv. in Burma. Its course lies between the Salwin and the Sittaung, for more than 280 m. It enters the Gulf of Martaban.

B. in

Biliousness, a condition characterised by loss of appetite, headache, lassitude, coated tongue, and con-stipation. It is popularly supposed to be due to over-secretion of bile, but more probably occasioned catarrh or other disturbances of the gastric regions.

Bill, or Beak, in natural history, is the term applied to the horny, tooth-less jaws of birds. The foremost leads to its being reabsorbed by the bones of the skull are elongated, and

covered with a horny sheath or rhampotheca; the same with the lower jaw, or mandible. No living birds a writing signed by a shipmaster, have any teeth, but the earliest forms merchant, or owner, declaring that of birds, such as the archeopteryx, merchandise shipped in his name are undoubtedly possessed some. The 'at the venture' of another, and his Tertiary Period appears to be the responsibility is limited to their safe time when birds ceased to have teeth; delivery. traces can still be found in certain species. The bill is not usually sensitive, though in some aquatic birds, and in the woodpecker, it is much penses paid by a solicitor on behalf of more sensitive than usual. The chief his client. By statute a solicitor must uses of the B. of a bird are for divid-deliver a signed B. of C. to his client, ing food, for fighting, preening, nest- and wait a month before suing for it. building, etc. It varies greatly in Bill of Exchange, a form of credit shape in different species of birds, its instrument of practically universal conformation being adapted to the commercial use, and governed by laws returned its food and behits. A mong and regulations, which with certain nature of its food and habits. Among and regulations which, with certain peculiar beaks may be noticed the differences, are identical in all councaptorial beak of birds of prey, the tries. In the United Kingdom, the fissi-rostral beak of swallows, etc., the tenui-rostral beak of sunbirds, etc., and so on.

Bill. In English criminal law the. accusation is drawn up in writing in the form of a 'B. of indictment,' which is presented to the grand jury, who, after hearing the witnesses on behalf of the prosecution, either find a 'true B.,' i.e., are satisfied there is a prima facie case, or find ' no true B., i.e., ignore the case. The B. of indict-ment so endorsed is presented to

the court.

Properly a B. is one Bill-broker. who deals with bills of exchange, receiving bills from merchants, foreign or other banks, etc., and disposing of them for the best terms, and receives a commission on the transaction. But now the B. usually buys bills outright and sells them to banks and other buyers. He is financed by the banks

apply to him.

a single judge, called Lord Ordinary, who is the junior judge of the court. During the vacation the B. C. has many of the powers of the Court of Session, and is presided over then by the judges in rotation. It is so called because in olden times summonses, and executions were generally berun by a writ, called a bill, but since 1813 such a process is not necessary.

Bill in Equity or Bill of Chancery, was formerly a statement in writing of a plaintiff's case, setting forth the grounds on which he claimed relief. It is now an obsolete form of pleading, and its place is taken by a writ and

statement of claim.

Bill in Parliament, see PARLIAMENT. Bill of Adventure, in maritime law,

Bill of Costs, an itemised account setting forth in detail the work done and the charges therefor and expenses paid by a solicitor on behalf of

law, founded on mercantile custom, a great number of judicial decisions, and separate statutes, was codified by the Bills of Exchange Act, 1882, which has been adopted by British colonies and agrees in the main with the law The original of the United States. form from which the B. of E. developed was a simple means by which money could be paid in a distant place without sending cash; thus A living at X owes money to C living at Y; D also living at Y owes a debt to A; therefore A sends to C an order to D to pay the money to C; or suppose A sells to D goods on credit, but his business requirement. business requires ready money; if he can get D's acknowledgment, and his credit is good, he can raise money now on D's promise to pay cash later for a consideration from a third party: thus arises the discounting of bills; D buyers. He is financed by the buyers. He goods shipped, £1100; Cwin lend 2 and by loans at call and short notice. He goods shipped, £1100; Cwin lend 2 and acts as prin, and not agent, and the imoney now at 4 per cent.; he thereacts as prin, and not agent, and the imoney now at 4 per cent.; he thereacts as prin, and not agent, and the imper does not strictly fore will give £99 and collect £100. is going to pay A in three months for goods shipped, £100; C will lend A the from D when the time expires. Various forms of such means of transacting or session in Scotland, which deals commercial business were no doubt with business of a summary nature, in use in very early times, but the B. such as applications for interdict, etc. of E., as we know it, as a negotiable During the sitting of the Court of instrument, was evolved, it is said, by Session the B. C. is presided over by the Florentine Jews in the last century, and was in use generally in commercial Europe by the 14th century. There are two classes of bills, 'inland' bills, covering transactions in one country only, and 'foreign' bills, which are drawn in one country and payable in another. Bills may also be classified as good trade bills' where the transaction is based on produce or goods sold and coming into the market; such bills are said to pay themselves, and form the best kind of security for advances made on them; other bills, which are drawn on securities or on credit, are called 'finance 'bills; lastly, there are accommodation' bills, or

where no passes between the parties to the bill. By the Bills of Exchange Act, sec. 3, a B. of E. is defined as 'an unconditional order in writing, addressed by one person to another, signed by the person giving it, requiring the person to whom it is addressed to pay on demand or at a fixed or determinable future time a sum certain in money to, or to the order of, a specified person, or to bearer. Thus a cheque (q.v.) is a B. of E. drawn on a bank payable on demand. (It may be noted here that bills payable on demand, i.e. cheques, must have a penny stamp on them; other bills must be stamped ad valorem; the rates can be found in any almanac, postal guide, etc.). An example of a simple inland B. of E. will elucidate the definition:

LONDON, 1st Nov. 1912. £100 Three months after date pay to the order of Mr. S. Robinson the sum of one hundred pounds, for value received. SMITH & Co.

To Messrs. Jones & Co., Glasgow. The last words, 'for value received.' are not legally necessary, as the law presumes that the bill was given for valuable consideration. Here Smith used to be issued annually, and hore & Co. are the 'drawers.' Jones & Co. daily interest till 1861. They were the 'drawees,' who on signing their current for five years, and renewable, name across the front of the bill be- and the rate of interest, fixed halfcome 'acceptors.' Robinson is the payee.' By accepting the bill Jones & Co. become the persons primarily liable on the bill. The acceptor may qualify the bill by attaching conditions, e.q. delivery of bills of lading, or making it payable at a certain place, such as his bank. When the bill falls due, that is, on Feb. 1, 1913. bill falls due, that is, on Feb. 1, 1915, the master of a ship when clearing with three days' grace, it is presented from a port, by the consul or other to the acceptors for payment; if it is port authority; it shows the sanuary port presented on the same of not accepted or not met by at maturity the bill is 'disho and the holder must give 1

public on the day of dishonour. bill dishonoured by non-acceptance, can be accepted by another for honour supra protest, if for non-pay-ment, can be paid 'supra protest.' the new acceptor and payee having rights against the party for whose honour he has accepted or paid. B. of E. is a negotiable instrument, the property in which passes, like money, by mere delivery, if the bill is

made order

example given above, the our is made payable to the order of S. Robinson;

valuable consideration; dorsement in blank makes the bill payable to bearer; a special indorsement makes it payable to a specially. named person's order, who to transfer the bill must again indorse it, and so on. A bill can, and often does, pass through a large number of hands before it is discharged by presentation to the acceptor and payment by him, and the greater part of the law relates to the rights and liabilities between the various parties through whom it has passed. The person to whom a negotiable instrument is transferred by indorsement or delivery can sue in his own name, and if he is a 'holder in due course,' takes the bill free from all defects of title. To be a 'holder in due course' he must have given value for the bill. the bill must not be overdue or known to be dishonoured, and he must take the bill honestly and without notice of a defect in title, such as fraud, etc. See M. D. Chalmers. Bills of Exchange: Byles, Bills of Exchange.

Bill of Exchequer, or Exchequer Bill, a form of security on which the British Gov. borrows money for the public service, under parliamentary authority. They were first issued in 1696. They used to be issued annually, and bore daily interest till 1861. They were yearly, varied with the money market. They became extinct in 1897, and have been superseded by treasury bills. which are issued for a maximum period of twelve months, and exchequer bonds, issued for a specific period, and with a fixed rate of interest.

Bill of Health, a document given to

of the port; ctions or con-, it is a ' clean tht possible or or touched;

once to the drawer and at persons who have indorsed from whom he can then claimed is a 'foul bill.' is a 'foul bill.' is a 'foreign' bill it be, of H. are necessary when the next must be 'protested' by a notary port of call is one where the ship may have a protected by a notary port of call is one where the ship may have a protected by a notary port of call is one where the ship may have a protected by a notary port of call is one where the ship may have a protected by a notary port of call is one where the ship may have a protected by a notary port of call is one where the ship may have a protected by a notary port of call is one where the ship may have a protected by the ship may ha A be quarantined if there be no clean bill.

Bill of Lading, a document signed by the master of a ship or an agent of the owner, acknowledging that goods have been received on board, and stating the terms on which they are to be carried. The B. of L. serves as a receipt for the goods shipped on board, as the memorandum of a contract between the owner of the ship and the shipper of the goods, and as a document of title to the goods, and if, as is usual, the goods are deliverable to the consignee's 'order or assigns,' if he wishes to transfer the bill he the B. of L. becomes a negotiable inwrites his name on the back. An in-strument, transferring by indorse-

port where the goods are loaded and the destination, the description of the goods, place of delivery, name of consignees, freight, the excepted perils, and shipowner's lien. With regard to the more important of these items, it should be noted that it is implied that there should be no deviation from the route of the voyage, and the shipowner is liable for loss or damage due to such deviation, except to save life but not property. It is usual, how-ever, to insert in the B. of L. specified 'liberties;' the quantities and condi-tion of the goods at the time of ship-ment must be described, as the contract is to deliver that quantity in the same condition. A 'clean bill' is one where the goods are not described with qualifying words, such as 'cases one or three in damaged condition,' or the like. The contract is to deliver at a certain place; the shipowner is liable if he does not do so, if his failure is due to one of the perils excepted, or if, for example, war has closed the port. The B. of L. generally contains the name of the consignee to whom the goods are to be delivered, and usually adds to his 'order or assigns.' He can then transfer his rights and liabilities to a third person by indorsing his name and delivering the document. The bill thus becomes a negotiable instrument, and can be re-indorsed on. On payment of freight the indorsec receives delivery of the goods. The amount of freight is either stated in the B. of L., or reference is made to the terms of the charter-party. The 'excepted perils' are those causes of loss or damage which exempt the shiploss or damage which exemptions only owner from liability. The common law exemptions were 'act of God.' i.e. every act in which man has no part, and the act of the 'king's part; and the act of the 'king's enemies,' i.e. from war. The tendency nowadays is to include a large number. The shipowner is presumed to undertake absolutely that the ship is seaworthy, and that all reasonable care will be taken by his servants and agents. It may be noted that by English law a shipowner may make any exceptions, but in the United States an act of 1893 forbids the insertion of terms exempting the owner from liability for loss through

ment the rights to the goods and the much plague, the par. clerks issued a various liabilities and rights of the weekly statement, a B. of M., showcontract. There are various forms of ing the number of deaths and the Bs. of L., but they all contain the causes that had occurred in each parnames of the shipper, of the ship, the based on the reports of 'searchers' They are said to date from 1538. when par, registers were estab. They were regularised in 1603, and continued till the Births and Deaths Registration, 1836, was passed. The age of the persons dying was not inserted till 1728, from which dates the science of life-insurance.

Bill of Rights, the name commonly given to the act declaring the rights and liberties of the subject, and settling the succession of the crown, 1689, which embodied the Declaration of Right drawn up by a committee of the Commons and presented to William, Prince of Orange, and his wife, afterwards William III. and Queen Mary. After declaring the crown vacant by the abdication of James II., the following acts are declared illegal: the suspending or execution of laws by royal authority without consent of parl.; the power to dispense with laws; the establishment of courts, such as the commission for eccles. causes; the levying money by prerogation without consent of parl.: the raising or keeping of a standing army in time of peace within the kingdom without such consent. The right to petition the king, the freedom of parliamentary elections, the freedom of speech in debates, and the necessity for frequent parls. asserted. The rest of the act is concerned with the settlement of the crown, to be superseded by the Act of Settlement, 1701. The B. of R. is the nearest approach to a written constitution which the United Kingdom possesses. Its provisions, so far as applicable, were embodied in the United States constitution.

Bill of Sale, a form of legal docu-ment, by which the grantor transfers to another (the grantee) the owner-ship, while retaining the actual possession, of personal chattels, such as goods, furniture, and other articles canable of transfer by delivery, including fixtures and growing crops. when assigned and charged separately from the building or land to which they are attached. Bs. of S. may be absolute, where the chattels are sold absolutely: they must be attested by a solicitor; the regulations as to such owner from liability for loss through Bs. of S. are laid down in the Bills of his servants' negligence. Finally, the Sale Act, 1878; non-compliance does shipowner has a lien on the goods for not void the B. of S. as between the treight by common law, and by the parties, but only as against the trustee terms of the B. of L., usually for in bankruptcy and execution creditors demurrage. See Scrutton, Charler of the grantor. More important are Parlies and Bills of Lading, 1904. the second class, Bs. of S. by way of Bill of Mortality. In the 16th security for the payment of money; Bill of Mortality. In the 16th security for the payment of money; century in England, when there was they must be made in accordance with

the form given in the Bills of Sale Act. | being both of weak character. 1882; which can only be departed | joined a religious sect when he from in verbal differences. The bill must be by deed, must contain the names and addresses of the borrower and the lender of the money for which it is security, the amount lent, and the interest: the assignment as security of the chattels, of which an inventory must be attached; the time when the money lent, and interest, will be repaid; a covenant to insure the goods and pay all rent, rates, and taxes due on the premises where they are. The lender stipulates that the goods will not be seized except for the reasons set out in sec 7, viz.: (1) Default in payment and covenants; (2) Bankruptcy or distraint for rates, rent, or taxes; (3) Fraudulent removal of the goods; (4) Unreasonable refusal to produce last receipts for rates, etc.: (5) Execution under a judgment. B. of S. must be witnessed and stamped in accordance with the scale. and registered within seven days of its execution. As trade protection societies publish all such registrations, a B. of S. damages a grantor's credit. All Bs. of S. not complying with the regulations of the Act are void. There are no Bills of Sale in Scotland.

Bill of Sight, a document given by an importer of goods to a customs officer, containing as good a description as possible of the goods, when a full description cannot be given. The goods can then be landed, but the full description must be given within

three days.

Bill of Store, a permit granted by the customs house to reimport British goods without payment of duty such as would have been imposed had they been foreign goods. It must be within

five years of exportation.

Bill of Victualling, or Victualling
Bill, an order given to the master of a vessel by a customs-house officer for the withdrawal from bond or for drawback of such stores as are necessary for the crew and passengers. Stores not on the bill, or if landed in the United Kingdom without authority, are liable to be forfeited and destroyed.

Billardiera, or, as it is sometimes is a shrub natural order

and in Australia, but some species of it are cultivated in Eng. glasshouses. It bears a fruit which, when ripe, is generally somewhat bluish in colour, and which possesses a rather strong resinous

flavour. Jacques-Nicolas Billaud-Varenne, (1756-1819), a notable Frenchman and revolutionist, the son of an advocate, was born at Rochelle. His early home influences were bad, his parents assist civil authority, or when cavalry

joined a religious sect when he was nineteen, but did not bind himself by VOWS: he worked instead at literate In 1785 h afterward

self as an advocate in the parlement. Political matters then absorbed his whole attention, and in 1789 he pub. three vols. at Amsterdam. From that time he became an acknowledged revolutionist. In 1791 he pub. L'Accphalocratic, for which he was obliged to hide for a time. In 1792 he was elected deputy-commissioner of the national convention. He immediately worked for the abolition of monarchy. When the trial of Louis XVI. took place, he voted for 'death within twenty-four hours.' He was pro-He was prominent in the overthrow of the Girondists in 1795, and in the same year he was made president of the convention, and member of the committee of public safety. Soon after this he

St. Domingo, where he died.

Bille, Steen Andersen (1797-1883), son of a Danish admiral. He served in the Fr. marine during the campaign of 1823, was made rear-admiral and minister of the marine in Denmark. commanded an expedition round the world, and wrote an account of it.

Billet, in architecture, is a style of ornamentation, belonging to the Norman period, of which the distinctive feature is the rounded arch. The B. was formed by cutting a round moulding into notches, so that the remaining parts had the appearance of small logs. In the transitional period the

B. moulding disappeared. Billet, in heraldry. Although Bs. are common in armorial bearings. representation is uncertain. their Some suppose them to represent bricks and others letters. Billety signifies that the charge is uniformly covered with Bs. The best known instance of this is, no doubt, the coat borne on an escutcheon over the arms of England during the reign of William and Mary.

Billeting, or Cantoning, as it is called, is a means of lodging officers and soldiers among the inhab. of a dist. Since the Army Act of 1881 B. is limited to the extent that only public-ho hotel - kee have soldiers and keepers of livery stables to tend their horses. If the keeper of the house is unable to provide room, he is obliged obtain accommodation in to vicinity. In Britain B. is resorted to when the troops are called out to

modation would be utilised whenever possible, and infantry usually travel by rail. In the United States the con-sent of the householder is a sine qua non in time of peace, and B. in war time is regulated by legislation. In continental countries, however, prevails to a much greater degree; no fewer than eight or nine men and three or four horses may be quartered on one private house during army manœuvres. The sustenance for men and horses is provided by the com-missariat. The early stages of a campaign are more favourable for B., as the movements of the enemy are uncertain, and the position undefined.

From earliest times, when the monasteries afforded hospitality to soldiers, the system of B. has been in vogue. Natural and cordial resentment has invariably been aroused by these arbitrary proceedings, and the third article of the Petition of Right, passed in 1628, bound the king 'not to

billet soldiers on private individuals. Billiards, a game of skill. It consists in the driving of balls against other balls or into pockets by a long stick called a cue. The table used is rectangular. The origin of the word is perhaps from the French bille, meaning a stick. Obscurity surrounds the first adoption of the game, and the various countries of Spain, Italy, and France are each said to have originated the game by different authorities. Shakespeare mentions the game in Anthony and Cleopatra, and further reference is made to it in Cotton's Compleal Gamester, 1674. Formerly the game was played on a lawn as croquet, and gradually the evolution of the B. table took place from a square table with one pocket in its centre to the modern Eng. table. rectangular in shape, with six pockets at openings in the cushions, one in the middle of each longer side and one at each corner. Fr. and American varieties of the game are played without pockets.

Eng. B. is played on a table of a hard wood (generally mahogany) frame, with six legs. These legs are sufficiently strong to support the weight of five slabs of slate measuring 2; ft. by 6 ft. 1½ in. These are fitted together with the greatest care to present an accurately even surface, and covered with green cloth of fine

raised from the floor at a height of 2 ft. 8 in. On the cloth are marked three spots of black in a line running down the centre of the table. At one end of the table is a baulk line drawn

are on a long march. Barrack accom- from side to side with an arc towards the cushion in the shape of a D. This is the full-size table, and smaller ones are made in proportion. In the beginning of the 19th century the bed of the table was of hard wood and the cushions of layers of list. About 1835 the minimum of clasticity afforded by the list cushions caused their dis-placement by those of rubber. This placement by those of rubber. This possessed the drawback that cold weather caused a hardness to lessen the possibilities of rebound, and a composition was eventually invented which fulfilled practically all conditions. The mouth of the pocket is called the 'drop,' and here the cushion corners are sloped away to ease the passage of the ball. Ordinary tables have pockets from 3, in. to 3? in.

There are three chief varieties of

the game, B., pyramids, and pool. Only in B. are any points counted when a ball is driven to touch two others in its course. This is called a 'cannon.' A 'hazard ' is the stroke that is made to play a ball into a pocket. The balls are three in number, and two of them are white, the other being red. The two white balls are 'spot' and 'plain' respectively, as one has a spot marked upon it to distinguish it from the other. Their shape should be perfectly spheroid. The substance from which they are made is ivory, though the property of this material in possessing parts that vary in resistance proves a fault. Other inventions are various celluloid compounds, such as crystallate, bon-zoline, and hollow steel, but their elasticity is still inferior to that of ivory. A rod of ash forms the cue. This is rounded and is about 4 ft. 9½ in. long. It tapers from the butt end, which is 1½ in. in diameter, while the tip is about ½ in. in diameter. On the tip is a leather cap covered with chalk on account of its liability to slip off the smooth surface of the ball on striking. To give the cue weight and driving power a splice of ebony or other heavy wood is let in the butt While formerly it was permissible to use the butt end in difficult strokes as far as convenience of attitude was concerned, all strokes now must be made with the tip. In striking, one hand holds the cue at the butt end, while the other forms a 'bridge' upon which the cue slides towards the ball it is intended to drive.

The object of the game is to register 100 or more (as arranged) points by means of the scores obtained by hazards and cannons. Two ponents usually partake in the game, though four may by arrangement. For each red hazard, i.e. pocketing or going in off the red ball, three points

are awarded; for each white hazard, This stroke is made when the balls are two; and for a cannon, two. Various near a corner of the table, standing in the table or pocketing your own ball knowledge. With a good without contact with any other forfeits three points, and ordinary miss can score a strokes lose one. The red ball is balls to their replaced upon its spot (the top-two points, till is most one) after it has been driven control longer. into a pocket. Should that spot be easily accomplised. covered by another ball it goes on the next spot, which is called 'pyramid' spot. An opponent's ball, if pocketed, is to remain there till his turn arrives. It is then placed in any part of the D from which area it was division at the beginning of the group. driven at the beginning of the game. On making a score the successful player is entitled to continue until his efforts yield no further points. When this happens his 'break' is finished. Hence there is no limit to the score of a player's break.

In order to commence the game the players stand at the baulk end of the table. The red ball is placed on the furthermost spot and the player starts to 'break' the balls with 'spot' or 'plain,' whichever he has It is necessary, in order not selected. to forfeit a point, for him to cause his ball to strike the red, though an advantage is his if he is sufficiently expert to play his ball back into baulk, purposely missing the red ball, for the position left to his opponent by this manœuvre is difficult. During the game it is possible to pocket the red ball and with the same stroke to cause a cannon in its continued path. In this case five is scored, three for the red hazard and two for the can-Again, it is possible for him to pocket both the red and his own ball. In this case six is scored, three for each hazard, for a ball that enters the pocket off the red ball scores a red hazard.

The various degrees of control exercised upon the path of the ball depend upon the condition of the leather cue tip and the accuracy of judgment with which the stroke is made. A ball is given 'side,' i.c. curve, by striking it towards the side, while a drive levelled at its base tends to cause the ball to travel in the opposite direction to that apparent to the novice. Great circumspection is necessary if success is desired in the game, as so much depends upon the position in which a player leaves his opponent. In some positions it is possible to arrange by clever play the position of the balls subsequent to the are disallowed in matches, but one of them is the famous anchor stroke.

Afterwards, as a member of the senate, he became examiner in medicine.

Billings, a city and the senate of the

restraint in two points, till his arm is too tired to This is even more easily accomplished when the two object balls are jammed at the mouth of a pocket, and it is on record that F. C. Ives against J. Roberts, jun., made 1267 such cannons. Similar positions, whereby the game was rendered at that stage uninteresting. have received the attention of the game authorities, and where the posi-tion invites this play, it is mutually arranged to break it deliberately. Many difficult shots present them-selves in the course of a game. Among these is the masse shot, which requires the cue to be held almost perpendicularly above the ball and a downward drive to beginned atits side.

The various billiard champions by their excellence of graceful combination in the matter of strokes have caused the popularity and develop-

ment of B.

Pyramids is played by two or more Fifteen balls are They are arranged in the form of a triangle or pyramid, whose accuracy arrangement is assisted by a oden frame. The apex faces the wooden frame. The apex faces the players. They have a white ball with which to strike, while the others are coloured. The object is to pocket as many balls as possible, scoring thus completely by hazards. The players, completely by hazards. The players, using the same white ball, strike at the apex of the triangle and play alternately, succeeding each other on the cessation of breaks. The balls are slightly smaller than B. balls.

Pool also consists of winning hazards, and is shared by two or more persons. A certain stake or pool is formed by subscriptions from the players. Each player has three chances or lives at the beginning. coloured or numbered ball is played The white by each participant. ball is placed upon the spot, and the player's ball is directed at it from baulk. If he pockets an opponent's ball he demands the price of a life from its owner. Varieties of this game are black pool, single pool, and snooker pool.

Billing, Archibald (1791-1881), physician, was on the staff at the London Hospital, and was the first to give stroke, and if this stroke be one that clinical lectures with regular bedside scores, the following break is limited teaching, and to insist on the study

Yellowstone co., Montana, U.S.A., on Billiton, an island belonging to the the N. Pacific Railway. It is noted for Dutch E. Indies, situated between sheep and cattle raising. B, is also a Borneo and Banca. It is about 55 m. tn. in Christian co., about 20 m. from long, 44 m. broad, and in area 1800 Springfield.

Billings, Josh, see Shaw, H. W. Billings, Robert William (1813-74), architect and author, was born in a History and Description of St. Paul's Mackenzie's Churches of London, also assisted Sir Jeffery Wyatville with drawings of Windsor Castle. The greatest achievement was his work Baronial and Ecclesiastical Antiquities of Scotland, and in this his name lives. He directed the restoration of the chapel at Edinburgh Castle, and the Douglas room in Stirling Castle. He died at Putney.

Billingsgate, a fish market in London, situated on the banks of the Thames, close to London Bridge, and to the W. of the Custom House. It was opened in 1558 as a landing-stage for provisions, and was estab. in 1699 synonym for

language. her first appearance as a pianist at the Haymarket. She commenced her singing career when she was fourteen, and about two years after she Dublin, and it was there that she made her début in opera, taking the part of Eurydice. In 1786 she returned to London and accepted an engagement at Covent Garden, at a class when a fact that time. She salary unheard of at that time. She then gave a command performance royalty. A contemporary sweetness, compass, and power, and that she possessed 'a great deal of genuine beauty with cheet and the sweetness of the second genuine beauty with charming manners.' At different periods of her life she studied under Paer, Himmel, and others. Her married life was not life was not leading to the happy. She was twice married. The route from Tripoli to Kouka. It is second union was more unhappy than noted for its salt mines, and for its the first, and she left her husband in salt-water lakes, from which, by 1801. Her reappearance in London evaporation, great quantities of salt was enthusiastically welcomed. Sir are obtained, and which is the object Joshua Reynolds painted her portrait. She died probably at Venice.

sq. m. Its coast is fringed with coral reefs and rocks, which render it difficult of access. It is marshy and sandy, but the interior is somewhat hilly, being at an altitude of nearly 3000 ft. The is, is noted for its tin architect and author, was born in sandy, but the interior is somewhat London. He became a pupil of John hilly, being at an altitude of nearly Britton, a prominent topographical 3000 ft. The is, is noted for its tin draughtsman, when he was thirteen, mines, numbering over eighty. The and during the seven years of his exports are rice, sago, nuts, gum, apprenticeship he developed tastes tortoise-shell, etc. Pandang is the for illustrated the provided of the pr bour. Pop. (1906) 38,000.

Billom, a tn. in Auvergne belonging to the dept. of Puy-de-Dôme, France. It is situated about 15 m. S.W. of Clermont. The trade, which is not great, consists of thread manuf.. corn, and linen, cattle. There is a hydropathic hotel in the neighbourhood, and a very ancient

church, Pop. (1906) 4725.

Billon is the name used for a metal which consists of silver or gold, with a greater proportion of a baser metal, e.g. copper. This is sometimes used in

coinage. The word is of French origin.
Billot, Jean Baptiste, a Fr. general. born in 1828. He served with great distinction in Algeria until he was as a free and open fish market. It recalled to take command of the 18th was rebuilt in 1852, and again in 1874. Corps d'Armée on the outbreak of the The name of B. has long been a Franco-Prussian War. He was elected abusive variegated a life senator in 1875, and was Minister of War in the De Freycinet izabeth (c. 1768-1819), cabinet. General B. vigorously oporn in Soho, London, posed all attempts to restore the nughter of a German monarchy and played an important Billington, Elizabeth (c. 1765-1615), English singer, born in Soho, London. posed all attempts to restore the English singer, born in Soho, London. posed all attempts to restore an important musician, by whom she received her part in the passing of the bill for the first musical training. She was a reorganisation of the staff of the army and for opening it to all ranks. 1898

Billroth, Theodor (1829-94), one of the foremost surgeons of his day, secretly married her singing master, a born at Bergen. He took his doctor's Mr. B. The couple went to live in degree at Berlin, but his chief work Dublin, and it was there that she was done in Vienna. He was a bold made her début in opera, taking the but humane operator, and was the part of Eurydice. In 1786 she re- first surgeon to perform an operation for cancer in the stomach. During the Franco-German War he served voluntarily in the military hospitals, and his practical work there, together with a famous speech on the War Budget, made him chiefly instrumental in bringing about several great reforms in the transport and treatment of the wounded. He wrote Allgemeine chirurgische Pathologie und Therapie and other works.

of immense trade with countries in

Central Africa.

Bilney, Thomas, Eng. preacher and martyr, born probably near Norwich about 1495. His education took place at Trinity College, Cambridge, and his ordination in 1519. He preached against formalism, and the worship of saints and relics; and his saintly influence caused such men as Latimer and Matthew Parker to be won over. In 1525 he was licensed to preach in the Ely diocese, and, while quite orthodox in the main, accepting the pope's authority, he still denounced the saint and relic worship. In 1527 he stood his trial as a heretic by Wolsey, and was imprisoned for a year in the Tower. He again began his preaching, but was once more arrested and condemned. He was burned at the stake in Norwich, 1531.

animals.

Biloculina, in geology, are a genus of Foraminifera which are found in the tertiary deposits of the North Sea.

Biloxi, a city in Harrison co., Mississippi, U.S.A. It is on a branch line of the Louisville and Nashville Railway, and is a summer and winter resort for the residents of Mobile and New Orleans. It does a large trade in packing and shipping fruit, vege-tables, and oysters. Pop. 6000. Bilse, Oswald Fritz, a Ger. lieu-

tenant who in 1903 pub. Aus einer Kleinen Garnison, a book dealing in an unpleasantly realistic manner with the darker side of garrison life in Forbach, a provincial Ger. tn. The book has been trans, into Eng. as Life in a Garrison Town. The Ger. ed. was suppressed in the year of its publica-tion, and B. was sentenced to six months' imprisonment, and dismissed from the army. The authorities, how-ever, were compelled to acknowledge the truth of some of B.'s statements.

Bilston, a tn. in England, situated in the co. of Staffs. It is 3 or 4 m. from Wolverhampton, is served by the Great Western, and London and N. Western relivery and London and N. Western railways, and is one of the iron-smelting centres. There are considerable manufs., which consist of: heavy iron goods—bars, machinery, engines, bedsteads, iron and brass castings, wire, etc.,—tin, enamelled goods, japanned ware, and pottery. A hard stone is found in the neighbourhood which is utilised for grindstones, and also a fine sand, for casting, is obtained. Pop. (1911) 25,681.

Bima is a scaport, and the cap. of the is. Sumbawa, belonging to the Dutch E. Indies. The is. is specially renowned for its teak forests and tamarinds. The exports are timber all the sum of the sum and horses.

Bimana, derived from the Lat., Himana, derived from the Date, 'two-handed,' is a term which was used 6-1; B. Branchelle, the famous Ger, at alther 1, the derived human being from the commands. This term was handed mammals. This term was a tribill Professor Huxgenerally used, until Professor Huxley in his lectures, and especially in his work, Man's Place in Nature, drew attention to the obvious fact that B. could not be limited to mankind, but could as well be used to describe many of the higher apes.

describe many of the migner apes.
The term has fallen into disuse now.
Bimbia, a riv. of W. Africa, which
enters the Bight of Biafra, to the W.
of the Kamerum R. It is known in
its upper course as the Mungo River.

Bimetallism, the employment of both silver and gold coins as standard Biloculina, the name given by money or legal tender. It must be D'Orbigny to a genus of minute pronoted at the outset that the use of tozoans of the family Miliolidæ and coins of both metals in Britain does order Testacea. They are marine not constitute B., because the stannot constitute B., because the standard is gold, and the silver and bronze coins are merely tokens. That is to say, the value of the silver in twenty shillings is by no means equal to the value of a sovereign; the silver coins are minted for convenience in dealing with small amounts. The dis-tinction is marked by silver not being altogether convertible, as it is not legal tender for amounts over forty shillings, and, on the other hand, silver may not be taken to the mint and freely converted into coinage. When gold and silver are both standard money, more or less freely convertible, a competition is set up which ins disturbing effects on trade. Let it be supposed that by reason of new discoveries of metal, the relative abundance of siver suddenly becomes greater. As metal it becomes cheaper, it is freely offered for minting, and the value of other commodities, including gold, increases; because abundance of money invariably means a rise in prices generally. Gresham's law, which may be shortly stated as bad money drives out good,' now comes into operation. Gold will be used in dealing with other countries where the gold standard only is maintained, and is thus driven out of the country. It has been observed that quite a small decrease in the relative price of silver is sufficient to encourage if recognised into as let say, where the amount of gold or other com-modities to be obtained for it is greater in value than in non-silver-standard countries. It is obvious,

ally, to recognise both metals in the

was hoped that if all the commercially important countries agreed to fix the 154 to 1, it would be possible to maintain that ratio by regulating the dethe coinage of gold or silver, and so stimulating or discouraging supply. The advantages claimed for a fixed ratio are greater stability in value of commodities generally, since there is likely to be a compensatory supply of one metal if the production of the other diminishes; the avoidance of depending on one metal, the supply of which may not be equal to the work required to be done; and the possibility of establishing a world-curto commerce universally. The great weakness of the case for B. has been the difficulty of establishing and guaranteeing the permanency of the desired fixed ratio. The influence of many important countries in adjusting the supply and demand of the precious metals would no doubt be enormous, but the conflicting interest of different countries would create difficulties as to the manner in which that influence should be exerted. This is well illustrated by the conditions which led to the bimetallic controversy. Between 1848 and 1860 great discoveries of gold took place in California and Australia. France, America, and the principal European countries except Britain had a double coinage standard, and gold was minted in large quantities, a large amount of silver being exported to India and other countries having a silver standard only. After 1870 the production of gold diminished, and that of silver increased enormously. The consequence was a general rush to mint silver and the operation of Gresham's law in causing the exporta-Gresham's law in causing the exportation of gold. An attempt to restrict to-day, the coinage of silver threw it on the Binc market as metal, and caused a further fall in price. The Indian government. as large holders of silver, and the silver producers of America, thus suffered considerable loss. A great agitation now sprang up, chiefly in America, to bring about an inter-national agreement to fix a ratio and make a double standard universal. Money conferences were held in Paris in 1878 and 1881, but without effect. Through the efforts of the United States, another conference was held at Brussels in 1892, but the opposi-tion of Britain and Germany again prevented the establishment of a silver standard. An attempt was then made in America to establish a bimetallic standard for that country

same ratio of value. This, then, is independently of Europe, and the what the advocates of B. desired. It presidential elections of 1896 and 1900 were fought mainly on that issue. The unwisdom of the step was ratio of the value of gold and silver at generally recognised by the American electorate, and the controversy gradually dropped. The increased mand, i.e. by increasing or decreasing output of gold in Australia and South Africa helped to adjust the situation, and the adoption of the gold standard by Austria, Russia, Japan, and Mexico has helped to make it prac-tically universal. The position at the by moment of writing appears to be that the principal states are reconciled to the permanent establishment of a single standard. The bimetallic con-troversy may be studied from the point of view of the bimetallist in International Bimetallism by F. A. Walker; the opposing side is represented by Giffen in The Case against Bimetallism; whilst an impartial view is adopted by Leonard Darwin in Bitmetallism.

Bimlipatam is the chief port of the Vizagapatam dist. in the Madras presidency, British India. It is situated on the Bay of Bengal, about 18 m. N. of Vizagapatam. There is a large coasting trade, and its chief exports are sugar and oil seeds.

Binab is a Persian tn. in Azerbaijan, situated on the Sou-chai, about 55 m. S.W. from Tabriz. It is surrounded by vineyards and orchards.

Binan, or Vinan, pueblo of Laguna prov., Luzon, Philippine Is., on a trib. of Laguna de Bay, 41 m. from Santa Cruz. Very fertile.

Binary Theory, a generalisation in chemistry which is now of historical interest only. It assumed that every chemical compound consisted of two parts which might be elements, or groups acting as elements, one element or group being electro-positive and the other electro-negative. The theory cannot be said to have any general value in the chemistry of

Binche, a tn. of Belgium, situated in the prov. of Hainaut, 10 m. E.S.E.

of Mons: pop. 13,000.

Binck, or Bink, Jacob (c.1500-c.60). German painter and engraver, born at Cologne. He studied under Dürer. and also, perhaps, in Italy. His engraving is very unequal, and among his best productions may be named the Divinities of the Fable and his

various portraits.

Bindusāra (297-272 B.C.), second Mauryan Emperor of India; son of the great conqueror Chandragupta, and father of the still greater Asoka,

who succeeded him.

Bindweed, the name given to sev plants of the order Convolvulacee, which climb by means of twining stems and are natives of Britain. The

name is most often applied to the sweet-scented Convolvulus arcensis, or lesser B. Calustegia sepium, larger B., often occurs in hedges, and is fertilised chiefly by means of a hawkmoth; C. Soldancila, sea-B., grows on the coast. The name black B. is given to Polygonaum convolvulus, a species of Polygonacee.

Bingen a tra of Hesser Darmstoat B. In the Christian Church, in ten vols. His first vol. was pub. in 1708, and the last in 1722. In 1712 he was mouth; C. Soldancila, sea-B., grows on the coast. The name black B. is given to Polygonacee.

Bingen a tra of Hesser Darmstoat Bingen a tra of Hesser Darmstoat B. In the Christian Church, in ten vols. His first vol. was pub. in 1708, and the last in 1722. In 1712 he was lost in the South Sea Bubble, 1720.

Bingen Church, in ten vols.

Bingen, a tn. of Hesse-Darmstadt in Germany. It is situated on the l. b. of the Rhine, about 15 m. W. of Mainz, and 40 m. S.E. of Coblentz. Near the town is the well-known Near the town is the weir-known Bingerloch, a whirlpool, which was at one time a most dangerous passage for navigation, until 1834, when the sunken rocks were blasted, leaving a wide channel of 210 ft. The Mäuseturm, or Mouse-tower, is situated on a rock in mid-stream, the scene of the stream of Bishon Hatta. The remains story of Bishop Hatto. The remains of a castle where the Emperor Henry IV. was imprisoned are in the neighbourhood, and almost opposite B. is the statue Germania, which was creeted in 1877-83 in commemoration of the war in 1870. B. is the centre of a wine-producing neighbourhood, and is also the market for the sale thereof. Pop. (1906) 7600.

he arrived at Grand Bassam. He de-Niger au Golfe de Guinée par le Pays de Kong et le Mossi, pub. in 1891. In 1892 he again visited the Guinea Coast for the purpose of superintending the forming of the Eng. and Fr. boundaries.

Bingerville, a tn. of W. Central Africa, situated a little to the N.W. of Grand Bassam. It is now the cap. of the Fr. Ivory Coast, having been con-

stituted in Nov. 1900.

Bingham, Joseph (1668-1723), an Eng. divine and learned scholar, born at Wakefield in Yorkshire. He was educated at Oxford, and was made fellow of his college in 1689. Two years later he was appointed college tutor. After some time he was forced to give up his work, resign his fellowship, and leave the university because of an accusation brought against him of heresy. The foundation for this aspersion originated from a sermon which he preached upon the word 'Person' as applied to the Trinity. Very shortly after, a living was given him at Headbournworthy, close to from 1865 to 1867. In 1863 he was Winchester, and it was here that elected a fellow of the Royal Society. he wrote his great work, entitled He studied with great diligence, and Origines Ecclesiastica, or Antiquities was considered to possess the most

hanna rivs., and

It is the cap.

an enterprising tn., well laid out. Its manufs, are boots and shoes, tobacco, of flour engines, etc., Pop. 45,000. tobacco, cigars.

Bingley, a market tn. in W. Riding. Yorkshire, England. It stands on the Aire, about 6 m. from Bradford, and 15 m. from Leeds. It is served by the Midland Railway. Its manufs, are woollen goods, worsted, cotton, paper; woollen goods, worsted, cotton, paper, there are extensive iron works in the neighbourhood. It possesses sev. fine buildings; among them are technical schools. a free library, a cottage hospital, etc. Pop. (1911) 18,759.

Binh-Dinh, tn. of Annam, Fr. Indo-China, 11 m. from the coast and 205 m. S.E. of Hué. Kwinhon, or Quinon, is its port. Pop. 75,000.

Binnacle is a framework or case or hox in which is kent the nautical

box in which is kept the nautical pass. It is fitted with lighting ratus, so that the compass can be at night. It is as a rule placed he deck of a ship, in front of the rsman. A double B. is occasionally ied, one on each side of the steerwheel. On board a man-of-war,

up to the Niger, and two years later one B. is for the use of the officer on watch, while the man at the wheel has the other. At one time the B. was just a locker with sov. compartments, to contain the compass, lights. watch-glasses, etc. In the middle div. was placed the small lamp, and as the sides were of glass, a light could be thrown on the compass all the time at night. The modern B. has been improved, for it is so constructed that the compass needle is made proof against vibration or shocks. A B. list is a list of the names of sick

A B. list is a list of the names of sick men on a man-of-war; it is generally placed near or in the B. for the scrutiny of the officer on deck duty.

Binney, Edward William (1812-81), geologist, was born at Morton, Notts. He was articled to a solicitor in Chesterfield, and in 1836 went to Manchester, where he practised successfully as a lawyer. His leisure was devoted to the study of geological phenomena of the district. Chiefly phenomena of the district. through his influence the Manchester Geological Society was formed in 1838. From 1857 to 1859 he was president of the society, and also from 1865 to 1867. In 1863 he was

at Manchester.

then was apprenticed to a bookseller. The chief port is Tanjong Pinang. for seven years. During this time he Pop. 18,500.

studied hard at Lat. and Gk. Later Binturong, a small black animal, on he entered a theological college to prepare for the ministry. His first call was to the Isle of Wight in 1821. cat. It possesses a large head, and a In 1829 he took up work at Weigh very thick long tail, prehensile at the House Chapel, London. He was tip. Its habits are nocturnal and strongly against the Church of England. In 1845 he visited Canada, and in 1857 he went to Australia. He ranked high among nonconformists. of his time.

Binnie, Sir Alexander Richardson (b. 1839), engineer, born in London; (b. 1839), engineer, born in London; educated at private schools and under J. F. Bateman, F.R.S., president of the Institute of Civil Engineers; was engaged on Welsh railways, 1862-6; in Indian Public Works Dept., 1868-71; was appointed engineer to the city of Bradford, 1875; chief engineer to the L.C.C., 1890-1901; created a knight, 1897. His engineering feats include the Blackwall Tunnel: Bradford Waterworks: and Barking Road Water-works; and Barking Road Bridge.

Binocular, see OPTICS.

Binoculus, a term formerly used instead of Apus for a genus of phyllopodous crustacea of the family Apodidæ. They inhabit fresh-water ditches, pools, and stagnant waters, and are gregarious. Males are seldom produced, the females carry their eggs about on specially modified appendages, and these eggs preserve the living principle for a long time in a dry state.

Binomial (Lat. bis, twice, nomen, a name), the name given in algebra to an expression consisting of two terms, as a
ightharpoonup b. The binomial theorem is a method of expanding any power. n may be any power integral or fracor irradional. (x-y) = x $\frac{n(n-1)}{1.2} x^{n-2} y^2 + \frac{n(n-1)(n-2)}{1.2.3} x^{n-3} y^3 + \frac{1}{1.2.3}$

...+ y^n . Thus, the expansion of $(x+y)^5$ is $x^5+5x^4y+\frac{5.4}{1.2}x^2y^2+\frac{5.4.3}{1.2.3}x^2y^3$

 $+\frac{5.4.3.2}{1.2.3.4}xy^4 + \frac{5}{1}\frac{4.3.2.1}{2.3.4.5}y^5 \text{ or } x^5 + 5x^4y$ $+10x^3y^2+10x^2y^3+5xy^4+y^5.$ theorem owes its origin to Sir Isaac Newton, who first pub. it in 1676. although he had devised it some years previously.

Bintang, the chief is. of the Rhiow

accurate knowledge of the coalfields E. Indies. It is situated on the S. of Cheshire and Lancashire. He died the Strait of Singapore. The coast is Manchester.

beset with rocks and small is., while Binney, Thomas (1798-1874), a Conthe interior of the is. is low and gregational minister, was born at marshy. Pepper, gambier, and rice Newcastle. He received his education are cultivated and exported. There from an ordinary day school, and is also a considerable trade in timber.

Biography

Binturong, a small black animal, found in India, Sumatra, Java, etc. It is frequently called a 'black bear cat.' It possesses a large head, and a tip. Its habits are nocturnal and solitary, slow and crouching. It feeds upon birds and insects. Its howl is very loud. It is easily tamed.

Binyon, Lawrence, born at Lan-caster, Aug. 10, 1869, son of the Rev. caster, Aug. 10, 1869, son of the Rev. F. B., was educated at St. Paul's School and Trinity College, Oxford, and won the Newdigate Prize in 1890. He received an appointment in the dept. of Printed Books at the British Museum in 1893, was transferred to the dept. of Prints and Drawings in 1895, and became assistant-keeper in 1909. L. B. pub. Lyric Poems in 1894, and this work was followed by a number of others, among which may be mentioned London Visions, Porphyrio, Western Flanders, Odes, The Death of Adam, Penthesilca, Paris and Enone, Attilia, Painting in the Far East, England and other

Biobio, the name of the largest riv. in Chile, S. America. It is 220 m. long. Its source is in the volcano of Antuco, in the Andes, and it takes a north-westerly direction to Concepcion, a port on the Pacific coast. It is more than 2 m. wide at its mouth, and is navigable for over 100 m. is also the name of a prov. of S. Chile. It has an area of 4158 sq. m., and is divided into three depts. The cap. is Los Angeles.

Biogenesis, a term used to express the theory that all forms of life owe of a B. expression into a series. It is their origin to antecedent life, as given in the following formula, where opposed to Abiogenesis (q.v.), which n may be any power integral or frac-maintains that it may be possible to tional, positive or negative, rational produce life from inorganic matter, or irrational: $(x+y)^n = x^n + nx^{n-1}y +$ The terms are used in connection with a biological controversy which recurfrom time to time. B. is also expressed by homogenesis, which means that the living organism produces by sexual reproduction, spore-formation. or partition organisms resembling the parent, though the resemblance to the immediate parent may not, of course, be exact.

Biography (Gk. βίος, life, γράθη, writing), that branch of literature which deals with the history of the lives of individual men. The first known instance of the use of the word archipelago, belonging to the Dutch βιογραφία is in the work of Damascius,

a Greek writer of the early 6th age of Rom "century. The word does not appear fine specim to have been used in England until Illustribus the 17th century. Fuller, in his Worthies, 1662, referred to the bio-Fuller, in his graphists of these saints, and in 1683 Dryden defined 'biographia' as the ' history of particular men's lives,' in all parts of which 'Plutarch equally excelled.' B., in its most rudimentary all nations. The history of the lives of national heroes, coloured by popular imagination, may be traced in the myths of gods and giants and insuperable warriors. Jewish abounds in B., as it affects the history to Domitian, written by Suctonius of the race. The O.T. is full of the lives of patriarchs, kings, prophets, and great women who left their mark indifference to chronological exacton the religious and social history of ness, and is by no means an impartial the Jews. The earliest exam ther B. of some note is

written with a conscious narrate the true history of of every deed pointed out and solemnly censured. This form of writing gives ample opportunity for rhetoric, and for the introduction of lengthy dignified speeches in oratio one of the earliest Bs. that have come down to us from the Gks. By far the most interesting is the Parallel Lives of Plutarch (A.D. 46-120). The Lives number forty-six, and the Gk. and Rom. heroes are arranged alternately as a parallel to each other. peared in 157

of note, belo.... of note, below are Philostratus' Life of Apollonius chosen as the medium of expression, of Tyana, the Neo-Pythagorean and the style and form modelled on are Philostratus' Live of Apouonus consen as the meatum of expression, of Tyana, the Neo-Pythagorean and the style and form modelled on that of Livy and Sallust. The chief Diogenes Laertius' Lives of the Philosophers (3rd century); Eunapius' Lives of the Sophists (4th century); Illustrium Majoris Britanniæ Scriptives of the Sophists (4th century); Illustrium Summarium, 1584, by John and the Life of Plato, by Olympiodorus of Alexandria. The Augustan tribus, and Commentarii de Scrip

had a remai Elizabethan

655-730) is accurate, but is of great interest. The Life of Alexander the Great, by Q. Curtius Rufus is not so much biographical as historical, and is overweighted with general reflections and rhetorical speeches. Tacitus life of form, exists in the early literature of his father-in-law (De rila el moribus Julii Agricolæ), written A.D. 98, is a stately, dignified piece of work, and contributes greatly to our knowledge of the history of the times. The Lires literature of the Twelve Emperors, from Casar

ther B. of some note is

by Sallust (c. 668-720) acy of Catiline. Saint men, are probably to be found in Gk. Jerome's Lives of the Fathers belongs literature. In Gk. and Rom. literature to a later period. The Bs. of ture B. is generally a mere curriculum the Middle Ages were frequently ure B. is generally a mere curriculum vilæ; the duty of the writer is to narrate, in strict historical sequence, the chief events of his hero's life. It often took the form of laudationes functors, and the aim of the writer was strictly a moral one. His hero must either be an example or a warn a metrical version of considerable length, and one in prose), and also with grave eulogy; the consequence the abbots of Wearmouth and of every deed pointed out and Jarrow. the material for which he Jarrow, the material for which he found in certain anonymous lives of these saints. Aldhelm, Bishop of Sherborne (d. 709), composed a prose treatise in praise of virginity, which obliqua, which deprive the work of he illustrated by the lives of a number any dramatic form, but add to its general moral tone. Xenophon's acters, hermits, monks, and saints—memoirs of his master, Socrates, is all of whom had proved themselves all of whom had proved themselves of the strict of examples of chastity. Other lives of interest to the student of Early Eng. literature are: Vila Sancti Columba, hterature are: Vita Sancti Columbar, by St. Adamman (6251-704); Vita Caroli Mayni, a life of Charlemagne, written about \$20 by Eginhard; St. Guldlac, by Ælifrie; Wulfstan, by William of Malmesbury; Wilfrid of alternately as a parallel to each other.
Plutarch far excels all anct. writers of lives. He is no scientific historian. His rare gift of sympathy with his subject and his powers of selection and of seeing what is interesting, are the distinction of being the 'carliest only equalled by the best of modern historians. William of Malmesbury; Wilfrid of William of Malmesbury; Wilfrid of Stephanus; and St. Guthlac, by Felix. The Life of Alfred, by Asser, Bishop of Sherborne, has only equalled by the best of modern biographers. vas a fairly large output of this of writing, but the form and pe of B. did not develop to any Lat. was frequently extent.

by his son-in-law, William Roper (1496-1578); a graceful Life of Cardinal Wolsey, by George Cavendish (1500-c. 61), which remained in manuscript till the 17th century; and History of the Life and Death of King Edvard V. and the Usurpation of Richard III., by Sir Thomas More, written between 1513 and 1514, and printed in 1557. Bacon's History of Henry VII. appeared in 1621. Long. mouth of the chancellor, and the style is ponderous. But an effort is made to analyse the motives and purposes of the chief actor, and everything is of the chief actor, and everything is subordinated to or explained by his actions. In this analytic handling of his subject Bacon made a clear ad-vance on the methods of his pre-decessors. All modern biographics, which aim at giving an artistic and truthful presentation of the life and character of an individual, must acknowledge their debt to the admirable and altogether unique Lives of Izaac Walton. This series began by the publication in 1640 of the Life of Donne, which was followed by the Life of Sir Henry Wotton in 1651; Richard Hooker in 1665; George Herbert in 1670; and Dr. Robert Saunderson in 1678. Walton had a sympathetic understanding so necessary sympathetic understanding, so necessary to a good biographer; his pleasing style and the revelations of his own pious and kindly personality combine to make the Lives very attractive to modern readers.

Up to the present it will have been noticed that the men chosen as subjects of B. are those whose lives bear directly upon the history of the church and state. Mere men of letters were not considered to be of such influence and importance as to war-rant a B. Even Walton's heroes were not wholly scholars. Drummond of Hawthornden's Notes on Conversa-tions with Ben Jonson, 1619, though not, strictly speaking, a B., revealed the character of a man of letters in conversation, and proved that man's character may be revealed in his trivial as well as in his serious remarks. From this time the scope of B. began to expand. Anthony a Wood (1629-95) chose the wits of Oxford for the subject of his Athenæ Oxonienses; John Aubrey (1629-97) pleasantly sketched the lives of his immediate predecessors and his con-temporaries in Minutes of Lives; Thomas Fuller (1608-61) wrote extensively, with numerous digressions. of the notable men of each county in

toribus Britannicis, by John Leland 1806), wrote a panegyric of her hus-(d. 1552); a Life of Sir Thomas More, band, who had taken part in the Civil by his son-in-law, William Roper War. Thomas Sprat, Bishop of band, who had taken part in the Civil War. Thomas Sprat, Bishop of Rochester (1636-1713), reverted to the old classic models in his *Life of Cowley*, 1668, where he expounded that all familiar anecdote was out of place in a B., and that a moral effect was the thing to be aimed at. Before the ord of the 17th cont art was lives was the thing to be aimed at. Before the end of the 17th cent my two lives of Milton were in print, one by Edward Phillips, pub. in 1694, and one by Toland, in 1699. Lord Herbert of Cherbury (1583-1648) and Anne Harrison, Lady Fanshawe (1625-80), were the earliest to write lives of themselves. Another early autobiography (1656) is that of Manautobiography (1656) is that of Margaret Lucas, Duchess of Newcastle, who also wrote a life of her husband in 1667. With these autobiographies must be noted certain diaries, which were, after all, autobiographies not intended for publication. The most important of these is the famous Diary of Pepys (1633-1703), written between 1660 and 1669. Its value was unrecognised till the 19th century, and an incomplete ed. was first pub. in 1825 by Lord Braybrooke. This book is not merely valuable for the light it throws on the manners of Charles II. and the men of his day; it causes infinite delight for Pepys complete and wholly unconscious revelation of his own little soul. Notice must be paid to the Diary of Evelyn, written between 1641 and 1697; to Roger North's Life of himself and Memoirs of his three brothers. the Lord Keeper Guildford, Dr. John North, Master of Trinity, and Sir Dudley, the Turkey merchant; and to Burnet's History of His Own Times. B. attained its most perfect form at the end of the 18th century in James Boswell's Life of Dr. Johnson. The necessities of a good biographical writer are numerous. He must, of course, have a knowledge of the bare facts and access to authentic documents relating to the life of his hero. But this is by no means all. Knowledge of facts and a strong predilection for moral platitudes were often, as has been shown, the sole qualifications of ancient biographers. But the ideal modern biographer should not merely be in touch, through his own technical knowledge, with the work and am-bitions of his hero, but he should have a sympathetic understanding of his hero's character. He should be able so to present his hero that the reader is left with the feeling that he himself has known the man. Everything must be subordinated to the central figure: his Worthies of England, 1661. Mrs. no incident, no person should be in-Hutchinson, in Memoirs of Colonel troduced that does not influence the John Hutchinson (1664-70, published life or the character of the hero. The

biographer must possess an innate the lack of the power of selection in knowledge of psychology; he must be the author. A great amount of inable to analyse motives, and to arrange his material and group his characters to the best effect. In fact, in order to reveal the personality of his portrait he must create as well as reproduce. The Life of Dr. Johnson is thought by many to have no rival in the whole realm of the world's literature. well had an unbounded admiration of his hero; an intimate knowledge that would be hard to surpass; and the happy knack of an artist in selecting and grouping his material. As Carlyle says, the 'loose-flowing, carelesslooking work is as a picture by one of Nature's own artists; the best possible resemblance of a Reality; like the image thereof in a clear mirror.' Boswell, he says, was 'inspired only love and the recognition and vision which love can lend.' Johnson lives for all posterity, not as a poet, story-teller, compiler, or even essay. ist, but in the pages of Boswell's immortal work. It, as Emerson said, a B. necessitates 'a great man to describe a greater,' Boswell's Life is an exception to the rule. Among the biographies, written by men almost as great as their heroes, are most prominent Boccaccio's Life of Dante, Dean Stanley's Life of Dr. Arnold, and Lord Morley's Life of Gladstone. Excellent biographies have written in great number during the 19th century. The great modern classics in this branch of literature are Southey's Life of Nelson and Life of Wesley; Lockhart's Life of Scott; Forster's Life of Dickens; Trevelyan's Life of Charles

Lives of Joh Great, Schille Moore's Life Life of Charle Martin's Lif and Dowden

deviated from the ordinary form of B. in his Life of George Eliot, 1884. He arranged her letters in chronological order, headed by brief introductions or explanations, allowing her character to reveal itself in her correspondence. Cross' method has by many writers been adapted and

combine modern Life and in his Lito insert intimate

illustrating the character of his hero). There have been, however, separate

A great amount of industrious research and scholarship is put into the work, but the biographer fails to present a living portrait of his subject. An example of this kind of work is Masson's Life of Millon. Masson gives a whole mass of informs. tion about the politics and lives of Milton's contemporaries, and introduces in detail and at great length many people and incidents which only very indirectly, if at all, bear upon the life and character of the poet. Sidney Lee's Life of Shakespeare is one of the finest examples of that type of B. which, of necessity, entails great amount of careful scholarly research. During the 19th century all manner of men have had their interest quickened in different branches of art and science, and to satisfy this natural and healthy satisfy curiosity, numerous biographics, auto-biographies, and memoirs have been published. These have dealt with leading men in all the varied walks of life. Biographies have often been written by specialists of specialists: these are of such a kind as to demand a certain amount of technical knowledge of the subject from the reader. and therefore can only appeal to the Under this heading come lives few. of painters and artists, such as Jahn's Life of Mozart, Karasowski's Life of Chopin, and Woltmann's Life of Hans Holbein. Autobiographies have manner of men and women, such as Gibbon, Hume, Franklin, Talleyrand, Harriet Martineau, Oliver Wendell Holmes, Leigh Hunt, Scott (in his Journal), Ruskin (Pralerila), Carlyle (Reminiscences), Goethe (Dichlung und Wahrheit), Sir Henry Taylor, Edmund Gosse (Falher and Son), etc. Bunyan's Grace Abounding, Thomas Browne's Religio Medici, and Now-man's Apologia are confessions of faith and revelations of the inward spiritual life of a man. Sometimes an autobiography has almost taken the form of fiction, as in Borrow's Lavengro, and not infrequently a writer has written his own life in a novel, and revealed himself in a special character, as, for example, Charles Dickens Copperfield. Halliwell-David Phillips has said that the writing of modern biographies has been ' carried to a wasteful and ridiculous excess. This is quite true. Every politician, man of letters, actor, and millionaire has some admirer or other who goes into print on his behalf. It is now publications of letters only, of which those of special note are Cowper's, written during the life of the subject. Matthew Arnold's (pub. 1895), and In which connection may be noted the Robert Louis Stevenson's (pub. 1900), recently published lives of Mr. G. Berd great fault of some biographies is and Shaw and the Right Hon. D.

Lloyd George. Every little denomina-tion and sect has its heroes, and lives and memorials are continually bephilanthropists, of nublished preachers, and missionaries. Such works are of purely ephemeral interest, and reach a very limited audience.

The biographical dictionary dates from the 16th century, and first made its appearance at Zurich in Switzerland with the publication of Bibliotheca Universalis of Konrad Gesner. This was afterwards trans, into Lat. and Heb. (1545-9). Other early works of this sort are *Prosopographia* of Verdia de Vauprivas (Lyons, 1573); Ada Santorum, 1653; Pierre Bayle's Dictionnaire historique et critique, 1696. A dictionary of national B. was pub. in Sweden in 23 vols. from 1835-57. Other nations followed, and such dictionaries have appeared in Dutch (1856-91), and

he English Dic-Biography was started in 1882, under the editorship first of Leslie Stephen, afterwards of Sidney Lee. It has been issued in 63 vols., the last appearing in 1900, since when three supplementary vols. have been published, and others will continue to be issued from time to Gubernatis, 1880; Rose's New General Biographical mentioned by name. Notice has been made of some at the end of this article. course) has only one true meaning, Nearly every country has now a i.e. its literal one, which is the science Who's Who, which gives a brief out-jof life. As will be seen later, it is line of the life and work of living men that science which endeavours to who have distinguished themselves in survey all the phenomenation of the phenomenation of the phenomenation of the phenomenatic structure of the phenomenation of the phenomenatic phe Dr. Johnson was one of the first to use this form in his Lives of the Since then there have been many works of the kind, of which may be mentioned the critical essays of Macaulay, Carlyle, Matthew Ar-nold, Robert Louis Stevenson, Leslie Stephen, Bagehot, and of many living men of letters. The English Men of Letters Series has pub. admirable pieces of critical work by such men as Sir Walter Raleigh, Edmund Gosse. Austin Dobson, etc. There is a similar

1845; Bryan's Dictionary of Painters. 1879-85; Hamilton's Poets Laureale of England, 1888; Bellany's Eminent Doctors; Lord Campbell's Lives of the Lord Chancellors and Lives of the Chief-Justices; Doran's Their Majesties' Servants, 1864; Grove's Dictionary of Music and Musicians, 1879-85 (new Smiles' Lives of Engineers; s Strickland's Lives of the Agnes Queens of England, of the Tudor Princesses, and of the Last Four Princesses of the House of Stuart; H. A. Müller's Biographisches Künstlerlexikon der Gegenwart, 1882. Some are of certain countries only, such as Appleton's Cyclopædia of American Biography, 1887-8, and Chambers's Dictionary of Eminent Scotsmen, 1835.

For cyclopædic biographical dic-

tionaries, constitutionaries, co 1747-66; Biogr Michaud's Biographie Universelle. 1811-28 (new ed., 45 vols., 1842-65); The English Cyclopædia, with biographical section, 1856-7; Nouvelle Biographie Générale, 1857-66; Chalmer's Biographical Dictionary, 1812-17: Spark's American Biography, 1834: Vapereau's Dictionnaire Universel des Contemporains; Dizionario

matter.

Two aspects of biology. - Tracing the history of all those who stand out pre-eminently in the realm of research in connection with sciences which deal with living matter, as opposed to those dealing with nonliving matter, we are enabled to see how B. has developed from very simple observations of living forms into a series of complex sciences which give us particulars or data concerning living creatures or aspects of them: American series, and Fr. men of let- and how it is now gradually resolving ters are celebrated in Les grands itself into a comprehensive presentécrivains français. One of the earliest ment of a unified and systematic publications of a group of biographies account of organic matter. This last publications of a group of biographies account of organic matter. This last was the famous Lives of Painters by stage evidently depends upon and Vasari (Florence, 1550). Other exproceeds from the first, and while it amples are: Foxe's Acts and Monuitives us generalisations concerning ments of the Church, or The Book of living matter, and certain laws re-Martyrs, pub. at Basel in 1559, and lating to its being, development, and trans. into Eng. in 1563. Of more modern date, Hayward's Sketches of strictest sense—a cursory glance will Eminent Statesmen and Writers; Cunsingham's British Painters, Sculptors, and Architects, 1829-33; Mrs Jameson's Early Italian Painters, agained from the primary aspect of Jameson's Early Italian Painters, gained from the primary aspect of

to the development of the other; and since the first aspect is by no means completed or exhausted, it follows or our com-

laws relating n matter, are

by no means perfect or complete. History of the rise of biology.— Man in his most primitive form is gifted with the power of observation, and even the savage can divide living matter into its two great divisions of plant and animal. He can further! divide these into tree, shrul, and herb, bird, beast, and fish: and in so far as he is able to do this he is to that extent a biologist. It can easily be seen, therefore, that developing powers of observation will produce two classes of naturalists: botanists and zoologists. Going back to the years 499-120 B.C. and looking over Greek history we find this division arising, for on the one hand we have Hippocrates studying the human body and discarding the old theory of disease, which attributed it to the wrath of the gods, in favour of more natural means, and Aristotle commencing to classify animals and speculating as to the differences between, and relative values of, life in animals and plants; and on the other hand we have Theophrastus classifying over 500 different kinds of plants into trees, shrubs, and herbs. Here we see the anatomist arising, and in the years A.D. 70-200 we have Pliny, the zoologist, and Galens beginning the study of the component parts of a living organism, by describing two sets of nerves and proving that the arteries contain blood. During the middle ages all science seemed to be lost in the glamour of alchemy, and little progress was made with the study of B.; but in the sixteenth century the science began to subdivide into still more particularly specialised subsciences. Vesalius proceeded further with the study of

ing to their seeds. Cæsalpinus | followed this up and made the first system of plants on Gesner's plan, further explained diœcious and plants, i.e. those plants which proseparate male female and flowers on separate individuals. Each of these pioneers of the sixteenth century had sketched out a rough plan of classification, so that botany, subsciences of B. then extant were beginning to assume a scientific invented a marvellous classification aspect. In the 17th century the progress was more rapid still. Fabricius

So that each branch is essential Aquapendente discovered valves in the development of the other; and the veins, and W. Harvey discovered the mechanism of the circulation of the blood, and the vessels which carry nourishment to it. This opened up a new branch of the science of anatomy, and from that time B. must be regarded as composed of the two subsciences of morphology and physiology, morphology being only concerned with the analysis of a living organism into its parts and taking no notice of the life which produced or is possessed by them, and physiology being concerned with living matter in action or with the functioning of the parts described by morphology. Harvey further commenced the study of embryology by asserting that all animals are produced from an ovum. Gaspard Aselius discovered lacteal vessels which aid in the work of absorbing fat for the blood, and Rüdbeck discovered the lymphatics. Malpighi now took up the microscope, Mappin now took up the increaseoper, and applied it with immediate results to the study of physiology, finding air cells in the lungs and the Malpighian layer in the skin. With Grephe discovered the cellular structure of plants and stomates in leaves, and -- the considera-

of seeds. Ray classified the whole animal and vegetable king-doms and laid the foundations of the study of the classifications anatomical, which led to the great generalisa-tions of Linneus in the next century. In the 18th century the advance of B. was even more rapid. In this century Boerhaave commenced the science of organic chemistry, the importance of which to B. can readily be seen when we notice the fact that he himself analysed milk, blood, etc., and showed that animal life can only and showed that animal me can ompore by the absorption of organic compounds. Dr. Haller of Göttingen worked on the subjects of muscular irritability, and the circulation of the blood, and started the work continued and extended by John Hunter involved in the study of comparative anatomy. Then Bonnet performed the comparative anatomy on plants and experiments plants on animals, and attempted once more the task of unifying the then known knowledge of the subsciences botany, zoology, anatomy, morphology, physiology, and comparative anatomy and botany into B., by again putting forward the evolutionary theory of gradual development. Geographical distribution of animals on the surface of the earth was now added as a branch by

differences in sexual characteristics and has never been entirely super-seded; originating as it did the in-estimably valuable categories of species, genus, order, and class. Again, Palissy the Potter originated in the 18th century the theory that fossils are authentic traces of extinct. life, and so laid the foundations of the science of palæontology, which was further developed by Hutton in the same period, who taught that present processes were sufficient to explain the formation of stratified rocks and the existence of fossils. Wolff further emphasised the truth of Harvey's theory of the develop-ment of life from an ovum. The 19th century opened with Jussieu who passed on from the work of Linnaus with his description of external forms to the foundation of natural alliances based on the findings of comparative anatomy and so founded the natural system in botany, while Cuvier followed it up in the classification of animals. Bichat proceeded from the study of organs to the study of tissues (muscular, nervous, etc.), and so seek to know all the actual forms of founded the science of histology. life and then their classification into The: raised the question of evolution through the gradual development of organs by reason of use or disuse through environment, and who was one of the first to commence the use of the word 'B.' Von Baer followed up the work of Wolff in the 18th century and placed embryology on a sound footing. Then Schleiden in the botanical and Schwann in the zoological aspects of histology improved on Bichat's work by resolving living organisms into cells, so founding the cell theory (1838). Dujardin and Van Mohl further resolved cells into protoplasm: while Virehow applied the cell theory to physiology and pathology; and Bernard applied the knowledge of the protoplasm to the study of the functioning of organ. tissue, and cell. In the second half of the 19th century, Darwin and Russel Wallace simultaneously developed the evolutionary theory beyond all previous efforts by their hypothesis of natural selection or the survival of the fittest. This was evolved to explain the facts that organisms are found to appear successively on the earth in types of ever-increasing anatomical complexity, and that the individual in its development from a single cell into a maturely complex

anatomical classification. This may and tends to substantiate the truth be explained as being founded on the of the theory of evolutionary descent of all living forms from a few simple prototypes. This theory evidently involves a conception of all our various specialised branches of B., and is an attempt to unify all this knowledge into one comprehensive whole. Ιt therefore represents that aspect of B. which presents a unified systematic account of organic nature. theory, having given an apparently reasonable explanation of biological development, seems to justify the general conception of evolution. has therefore been adopted in sociology which must, as will be shown later, be considered as related to B.: and led to the development by Galton of the theory of eugenics, which seeks to elucidate all those agencies which affect racial qualities. Prominent with Darwin and Russel Wallace, as pioneers in the evolutionary theory. are Haeckel and Huxley.

Logical evolution of biology.—Thus we wished to follow a logical sequence in the study of B., it would seem that commencing with living matter as a whole, we should first the worked on separate families, natural orders, and sub-kingdoms, and so e work was in the realm of embryological botany.

Next came Lamarck, who once again raised the question of evolution of evolut the facts relating to their distribution in present and past time respectively. From this an analysis of each form would give rise to anatomy, and comparison would involve comparative Delving deeper for, and anatomy. observing, the unity underlying these various forms we arrive in the realms of morphology by analysing the organism into organ, tissue, cell, and protoplasm; and searching here for details we arrive at the sub-heading of embryology. But we would now be face to face with the functionings of these organisms in life, and seeking to elucidate these in the processes of life we arrive at physiology, which also must be studied in terms of organism, organ, tissue, cell, and protoplasm. This in its turn will subdivide, as we search, into a study of the effects of environment, heredity, pathology, reproduction, and varia-tion; each being studied under the five categories of organism, etc. Only after all these subsciences have been attacked and their main generalisations acquired, are comprehensive generalisations possible; and this, of course, is only possible when all the subsciences are complete. But the nearer they attain to completeness organism repeats the same processes the more true are our generalisations,

and although the present state of the turn can only be studied in the light subsciences hardly allows for dog- of the knowledge of the organism and matism in the science of B., yet it is at least possible to obtain a general partial presentment of the essential These in turn are bound to give a directive influence on the subsciences, and must tend to a fuller and deeper and more accurate study of them. This comprehensive generalisation is undertaken in the Darwinian theory which, it must be borne in mind, is, in the first place, valuable because it causes a transition to be made from a gaining of specialised knowledge to an obtaining of a general view of organic nature. Now each branch of B. is studied in relation to the whole and in the light of evolution. and a new impetus has been added to the study which has caused it to loom more largely in the public estimation. So Darwin may be said to be the great populariser of the science, and further it may be said that he has raised the value of living matter as high in the world of science as life always has been in the world of thought. The Darwinian theory of thought. The Darwinian theory of Natural Selection is an explanation of the conception of variation, i.c. the departure of species from retheir average characteristics. garded as being brought about by the struggle for existence. Although the evolutionary theory is generally accepted now, and although the Darwinian theory is the most commonly held, it is necessary to remember that new schools of thought are reverting to the Lamarckian theory, which explained evolution biologically in terms of environment and use and disuse, and departs from the generally accepted view by maintaining that variation due to changed functions or environment are always transmitted. This school is known in America as the 'Neo-Lamarckian' Another school is laying down the hypothesis that variation is definite, and that evolution exists order to maintain the species adequately along reproductive and social lines; and this school, of course, breaks down the theory of variation along the lines of the struggle for existence of the individual, replacing it by a struggle of the species. This, of course, explains evolution in terms of co-operation instead of competition, and if applied as the Darwinian theory has been, to other fields of thought, it would once again comalter the outlook on From all this it will be seen that the science is by no means complete, or its findings unanimous in any one direction, and that it all turns on a wider and more definite study of the From this Bichat developed the study functioning of organisms. This in its to the functioning of tissue, and

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its parts. Thus we are led to the conclusion that the two most important branches of B. are morphology and physiology.

Morphology.—As seen in the brief historical sketch above, starting with Gesner, we arrive at the 17th century with this subscience in a very in-complete stranger and Willowille, then attack and in the stranger and with Bullet its greatest extension as mere general natural history. He traces out all that was known in the old world with his book on natural history, and we then find Linneus improving on this with his marvellous artificial system of classifying the anatomical world. The importance of this must again be emphasised for it is the foundation stone of modern classification. This led on to the extending work of Jussicu in botany, who classified not according to external forms alone, but on the basis of comparative anatomy. With Cuvier taking up the same task in coology, we have the foundation of the natural system of classification laid down. From this Bichat pro-ceeded to the analysis of organs into tissues, and Schleiden and Schwann, resolving this still further into cells. from which the step to protoplasm was made by Dujardin and Van Mohl. At the same time the study of embryology, or the development of the individual, was carried out by Yon Bace, along the lines laid down by Harvey, Wolff, and Robert Brown. This enables us to trace the development of an individual organism, knowing its structure and the vital processes connected with each step of that development; and it can less us to link up the history of the individual with the history of the If we try to resolve living matter to a less complex stage than protoplasm we pass from the realm of morphology into the realm of physics or chemistry; so that morphology must be studied in terms of either organism, organ, tissue, cell, or protoplasm.

Physiology.—Starting again with the ancients we find that their knowledge of physiology was vaguer than their knowledge of morphology, the study of medicane by Hippocrates was a study of the functioning of the organism, and the great discovery by Harvey of the circulation of the blood started the study of the physic logy of organs and opened up the truth that many of the processes of life are performed by definite organs.

of the cell. As we shall see under the heading 'Nature of Life,' physiology has to deal with the processes of growth and waste (metabolism) in the protoplasmic material of the cell: the protoplasmic material of the cell; for these are the ultimate cause of life and death; and so the work of Bernard in relation to these processes of the protoplasm is seen to be of the highest importance. Thus it is the highest importance. evident that morphology and physiology have developed along similar lines and thus early it can be seen how interdependent, and necessary to the interpretation of each other, they are.

evolution .- But Embryology and although these are the main divs. of that aspect of B. which is concerned with the collection of facts concerning life as it acts upon matter, yet embryology, or the study of the de-yelopment of the individual organism, binds these two sciences together in such a manner as to enable us to take a comprehensive outlook on organic matter. Commencing with Harvey's assertion that all living organisms develop from an ovum, it was not considered as of value until Wolff reasserted it in the 18th century, and it was only after Von Baer had developed the subject, and Schleiden and Schwann had originated the cell theory that it was of great use. However, the linking of this subscience with that of paleontology and an observance of the fact that the history of the development of the in-dividual more or less resembles the chronologically increasing complexity of organisms, have led to the attempt to explain and understand this development under the theory which we term evolution. It is possible to understand how embryology links up morphology and physiology, when we remember that in studying the development of the individual we must investigate the structure of the various stages in that development and the vital processes connected with that structure in those successive stages.

Nature and origin of Life.—Now it will be seen from all that has gone before, that the work of the biologist; is to study the phenomena of life,

Virehow further reduced the study life may be. Nevertheless, the questo a consideration of the functioning tion as to what is the origin of life has crept into the biological aspect, together with the question of the nature of life. More particularly has this gained ground through the recent statements of Professor Schäfer at the British Association meetings, 1912. He once again has revived the idea that life can be made artificially in the loboratory. But although it is not truly the biologist's province to study the nature of life, he is within the bounds of his science when he is studying the nature of living matter. It has been ascertained by using physical and chemical methods in the study of physiology, that living matter always consists of a complex compound of carbon, hydrogen, nitrogen, and oxygen (called protein), together with certain salts and about seventy per cent. of water. These are the chief components of that primary form of living matter known as protoplasm. Further, living matter is always in a state of metabolism or physico-chemical change, i.e. it is s material cons--and In this process of growth (anabolism) or in a state of waste (katabolism). The respiration of oxygen causes carbonic acid gas and other oxidated compounds to be formed out of the waste tissues, and the result is decay. But matter is taken in to repair this waste, and the matter taken in is either protoplasmic from other living organisms, or else it consists of the same elements in simpler forms in the case of animals, while plants seem to be able to take in and build up into proteins the gases themselves (nitrogen, and carbon dioxide). In either case the addition takes place by interposition between existing molecules, not by accretion at the surface. If the disintegration takes place faster than the reconstruction, then the cell decays and dies; if the two processes go on at the same rate, then the size remains stationary: if the former goes on at a slower rate than the latter, then the cell grows. Now non-living then the cell grows. matter does not exhibit these phenomena. A crystal can be made to grow if suspended in a saturated solution of matter similar in structure is to study the phenomena of the solution of matter similar in structure acting upon matter, that is, 'B. is the to itself, but there are two striking science which has for its object the study of organic beings, and for its end the knowledge of the laws of place, as has been stated, a crystal their organisation and activity' can only be made to grow at the their organisation and activity can only be made to grow at the (Charles Robin). It is evident to all expense of material the same as itself, that it is no concern of the biologist, while plants grow at the expense of as a biologist, as to what is the nature materials far different from itself, and of matter: and it should be just as even animals absorb matter that is evident that, in reality, it is no condifferent from their own. Again, crystern of his as to what the nature of tals only grow by accretion at the

surface, while the growth of living living matter. matter is always a process of intus- forward as a law, but it rests upon the susception between existing molecules in the cells. Now, further, all living matter decays and dies by resolving itself into highly oxidated pounds, and again, these processes of life depend upon certain ranges of moisture and heat. All living matter large enough to be studied under the microscope yields to the fact that the different parts differ chemically and physically, and that in most living things these different parts become organs visibly different, and even the simplest forms of life possess that power of responding to stimuli which is known as irritability. Again, on the ground of propagation living matter quite distinct from non-living matter. As far as we are aware at present, all living matter proceeds from pre-existing living matter (biogenesis), a portion detaching itself and acquiring the same power of reproduction by division. Now we reproduction by division. Now we know of nothing in non-living matter which is in any manner similar to these properties of living matter. But although this seems to show a sharp division between living and non-living matter, it is not so simple a matter as it may seem to be at first sight to distinguish between the two. For simple forms of living matter are not very distinct from non-living matter. It may be that the adaptability of living matter to environment and functioning is the clearest method of distinguishing the living matter. But the fact remains that the difficulty to chemists in

is not its fundamenta tion are we

lies in the formation of these compounds direct from their elements. For although the science of organic chemistry has proceeded very far, yet to make organic compounds, in any sense approaching the complexity of protoplasm, it is necessary to proceed from less complex but still organic compounds. So biologists are not yet prepared to use chemical formulæ to explain the composition of living matter. This has all led, however, to the idea that 'life' and 'living the idea matter' are interchangeable terms, and has given rise at various times to a type of scientist generally regarded as a biologist who is concerned with the facts of the origin of life. As the general view is that he is a biologist, the question may be considered here, although it rests really in the realms of either physico-chemistry or metaphysics. Several views have been put forward on the origin of life, and the

This cannot be put basis of experience. Anything beyond this is speculation. However, the view of early philosophers was that living matter proceeded from non-living matter super subst magg

1660 to be false; but the perfection of the microscope, and the consequent discovery of animalculæ in any infusion of organic matter, caused the theory to be raised again in the 16th century, only to be destroyed by Spallanzani, Schulze, and Schwann. It was again raised in 1859, however, by Pouchet, whose arguments were destroyed by Pasteur, Cohn, and Tyndall. Bastian revived the matter in 1872, but his arguments do not bear scientific scrutiny. Russel Wallace has declared the question to be beyond human investigation, and speaks of a 'spiritual influx' of life. The theory supported by Lord Kelvin is that the germs of organisms were brought here by meteorites from other worlds, while Preyer supports the hypothesis that life, like matter and energy, are eternal, and that it is just as reasonable to suppose that non-living matter has been formed from living matter as it is to suppose the con-Ray Lankester adopts the verse. view that living matter has been evolved from non-living matter by chemical processes, and that the first protoplasms fed upon antecedent forms of their own evolution. theory is the most generally accepted, because it fits in with the evolutionary theory best. It assumes that at some stage in the earth's history the conditions of temp., moisture, pressure, etc., were such as to allow of the formation of highly complex organic compounds. Some would break down immediately, while others would— perhaps by the aid of another substance—tend to reform as fast as they disintegrated. Having so commenced they might perpetuate themselves by they might perpetuate themserves by feeding on less complex compounds. The theory of the survival of the fittest being applied here, the finest compounds from the point of view of metabolism, or growth and waste, would live on and gradually evolve into protoplasm. We do not know the total and the same and we have of nothing the steps and we know of nothing lower than protoplasm, so it is mere speculation; but this is the hypo-thesis which Professor Schäfer brought out in his widely discussed paper, read before the British Association. He has added this fact, however that he considers that we are on the chief one is that of biogenesis, i.e. that he considers that we are on the that all living matter proceeds from eve of the day when this process will

be repeated in the laboratory. experience is against this view, however, although its agreement with evolution makes it plausible. But while it is easy to imagine these chemical processes as being possible. it still is true that they are not yet understood. Huxley, in his address to the British Association in 1870. held that biogenesis was the more rational theory, although he held that had he been a witness of the early stages of the earth's history, he would have expected to have seen the formation of protoplasm from non-living matter, and this was agreed with by Spencer, who thought that it fitted in, as has been stated above, best with the evolutionary theory. In any case, however, the facts are little further advanced to-day, and so the theory must still be, that in the light of experience, the origin of life is still a mystery-all forms proceeding as far as we can ascertain from previous forms; and all seem to agree that at present no form of life is being evolved from non-living matter by natural means. Thought of the behaviour and reasoning of higher animals, and the consequent conception of mind, leads us still further to incline towards the biogenetic theory.

Cell theory.-Before we can proceed further we must take note of one of the greatest generalisations of B., i.e. the cell theory, for upon this is based the whole study of evolutionary B. which depends upon embryology, Embryology only became fixed as a science when Schleiden and Schwann evolved this theory. Briefly stated, it is that all plants and animals, in fact all living matter, consists of one or more cells, which are composed of a mass of protoplasm, divided into nucleus and surrounding cell body. Growth is due either to the multiplication of these cells or to the increase in size, or to both. Reproduction consists in the division of these cells into two, and so all forms of life are produced from a single cell. Differentiation in multicellular organisms is produced by a division of labour among the cells. The activity of an organism.

Embryology.—A brief outline of the facts of embryology which are useful as bases of generalisations follows, and is essential to a conception of B in its ultimate sense. In the first place we may say that the universal fact of death involves a necessity for reproduction and development. Since in

All for the species would become extinct. and very soon all living matter would revert to non-living matter. the cell theory it has been seen that all living matter, simple or complex, starts life as a single cell. The very simplest never consist of more than one cell. These, after living for a certain period, divide into halves, each of which grows into the same shape and size as the parent cell. Each of these subdivides into two in its turn, and so on; and in these simple forms alone it is possible to say that death never occurs. Although the original cell does not continue to exist, yet its actual material exists. Therefore, it may be said to be immortal, though not everlasting. this form of life there is no distinction between body and organs. functions are performed by one body, or rather cell, and though we speak of it as a simple form of life, yet physiologically speaking, it is most complex, for it has to perform all the functions of reproduction, nutrition, growth, etc., itself. Viewed from the metabolic position, however, it is easier to understand, for, as Bernard has shown, all the various functions of the living organism can be reduced to those of growth and waste. The manner in which they reproduce themselves is known as the asexual method of reproduction. A slightly higher, but in reality very little different, method of reproduction is that shown by some single cells, such as yeast, which bud off portions of themselves that eventually become separate. Another form of reproduction is that known as conjugation, in which apparently similar cells unite into one for this purpose; although even here there is no trace of sex. (a) Differentiation: The next stage of life is that in which many similar cells unite together to form a body. thus get an organism made up of several cells (multicellular), and here we begin to see a differentiation of functions of the cells which leads to some of the cells being set apart for digestion or nutrition, some for moveor its life, may be expressed as the This aggregation of cens reads to one of the activities or lives of the formation of tissues (cells combined together with one function in comton together with one function in common) and eventually to the formation of organs (aggregations of similarly functioning tissues). In these higher forms of life the cell has split up into aggregates of different cells with different functions, but they have nevertheless all sprung from the same cell, and unitedly they may be all those forms of life which are more termed the organism or body. (b) Recomplex than the very simplest, the production: Now we have seen that in complex than the very simplest, the production: Now we have seen that in individual sooner or later dies, there the formation of an organism, diffinust be some process of reproduction, ferentiation has been going on—cells

ping the others. And it may be noted in passing that the cells are of two kinds: somatic cells (those which function for the growth of the body, e.v. the digestive nerve, glandular, etc.), and germ cells (those whose work it is solely to form the starting cells of a new organism, and are therefore reproductive). Now it is evident that the highest function of a cell is reproduction, and so it is relegated to that special set of cells known as the germ cells. Those cells which are derived from a female are termed ova, and those which are derived from a male are termed spermatozoa animals and spermatozoid in plants—sperms in general. Having different functions they have developed along different lines, the ova being unlescent and stored with food for the nutrition of the embryo, while sperms are active and small with generally a whip-like tail. For reproduction an ovum and a sperm must unite into one single cell, which is then called a fertilised ovum. Sperms which do not reach an ovum die, and in all cases except those where parthenogenesis occurs, so do ova which are unfertilised. Under suitable conditions a fertilised ovum is able to divide and redivide into millions of cells. First are produced germ cells to secure the furtherance of the race in the next generation, and then the other kinds of cells are formed. these take the shape of an embryo or young individual and gradually develop into the living organism. Those cells which are formed in the process differentiate into those required for the functioning of the organism, and are divided into classes-germ and somatic cells. No other cells but the germ cells, which remain embedded in the reproductive organs acquiring nutrition and shelter there until they again take their part in fertilisation, ever unite to form an organism. Of course it is possible for a body to regrow a part of itself, e.a. a wound healing, and a worm cut in halves regrowing the old half, etc., but no cells but the germ cells can produce an entirely new organism. Somatic cells increase directly by division. Germ cells must be fertilised. It is possible to trace back the germ cells. in some instances, through the emeismann's

are indeand that, germ cells

go on for ever giving rise to new forms of life. (c) Death: Here we may branch off for a moment to show that this view raises the question as to whether death is an essential

taking up certain functions and drop-lattribute of life. Death may occur in any one of three ways: (1) accidental death by (a) violence, (b) disease; or (2) death by decay or the preponderance of katabolism over anabolism in the physiological processes of life, or, in other words, natural death, Death can hardly be said to occur amoug the unicellular organisms which reproduce by division, however, So death seems to be involved when somatic cells are differentiated from germ cells. Death only occurs through the body; the germ cells pass into new generations. The processes of growth and waste (anabolism and katabolism) are not evenly poised, and so death steps in. (d) Continuance of life: This easily leads to the completion of Weismann's theory, i.c. that the germ plasma which has its seat in the nucleus of the cell has great powers of persistence and growth, and is used in the development of a new ovum, is not used up in the formation of the new individual but is reserved for the formation of succeeding generations. This theory of course throws a great light on the problems of heredity and variation, as will be seen later. (c) The embryo: The embryo is seen to develop from a single cell into an ovum which, on fertilisation, becomes a ball of cells (morula), and finally becomes a sac of two-layered cells (gastrula). Taking a mammul's life history, we can go further than this into the development of an embryo under the dif-ferentiation of these cells. At first it acquires some of the characteristics of a worm; then of a simple backboned animal like a fish; then of a rept lian embryo; and finally it ranks with mammals, vaguely at first, and then it develops a likeness to its related forms. At certain stages it is a matter of impossibility to tell, say, the embryos of a dog, fowl, or man from each other.

-This leads into a con-Evolution.sideration of the biological aspect of I palmon-

ology, it develop-

the historical evolution of the race. This is only true when we remember that it only follows the main lines of historical progress. Therefore the re-semblance would be between embryos. An embryo man is like an embryo dog at certain stages—not like a dog.

The Darin lished a scic evolution of

had tried to speculate on the possibilities of the modifications of organisms, but Darwin was the first to show clearly the evidence for the assumption that biological evolution

has taken place. He has proved evolution to be an unbroken series of natural events, and that it can be accounted for by forces at work at present. Darwin and Russel Wallace together laid down the hypothesis of natural selection-or the survival of the fittest in the struggle for existence; and fitness here is measured by the capacity to succeed in the environment in which the organism happens to be placed. Here it may further be added that highness or lowness in an evolutionary series is governed by the complexity of the bodily and mental structure. Darwin asserted that the chief factors in the process of biological evolution were variation, heredity, and the struggle for existence. It is possible to modify the bodily and mental structure of plants and animals by continuously selecting and breeding from those which have the variations in the right directions. He showed that this does go on in nature, and he called the go on in nature, and he called it the process of natural selection. The result of the Darwinian theory in B. is that the two studies of variation and heredity received a great impulse, for while they are essential to a unified outlook on B., they had not in the past been studied a great deal, and they were among the most incomplete of the subsciences of B.

Heredity and variation.—Reverting

to embryology for a while, it will be remembered that one of the generalisations of that science involved the genetic continuity of life, i.e. that in each development the germ plasma which the parental ovum contains is not used up in the formation of the offspring, but is reserved for the formation of the germ cells of the following generations unchanged (Weismann). Therefore, since no parents produce germ cells, but the cells have been handed down, as it were, from generation to generation, the truth of the saying that like produces like is obvious. Similarly, it is not hard to understand why an individual should resemble a remote ancestor, any more that immediate generations Now applying should correspond. this to biological evolution, it is evident that no evolution could go on without it. For not only the similarities but all the differences in organisms are the results of summing up hereditary differences. For if we turn again to sexual reproduction, the substances containing the factors of heredity must be passed on with the cell or the nucleus of the cell; and it must be passed on by both sperm and ovum. Thus characters will appear in the offspring that will be reminiscent of both parents, though some may be

generations. Older writers, such as Lamarck, supposed that which were induced in the body of the parents by temperature, moisture, nutrition, use and disuse, etc., were inherited. Weismann, however, proved that the inheritance of acouired characters was not a fact. e.g. that mutilations such as the repeated cutting off of the tails of dogs, or education, muscular or mental, have never been shown to have been transmitted. In fact the evidence seems to be towards the other side. But all organisms possess that power of life known as irritability, or the power of responding to stimuli, in fact this power is the result of inherited and environmental factors. Every varia-tion of character is therefore partly acquired and partly inherited. All structures, organs, habits, and activi-ties depend upon both factors. They are the result of heredity and environment. Again, there are two ways in which variation may occur. It may occur through a change in the germinal constitution of the offspring. the environment remaining constant. or it may occur through an altered environment the germinal constitution remaining constant. To the first iss we

first signifies an inherited, and the second an environmental variation. The former may be transmitted under any environment, the second only when the environment is the same. and even then it cannot be regarded as certain. Thus in the struggle for existence those organisms will succeed best which depend least on environment or external stimuli, e.g. warm-blooded mammals have that organisation which keeps the temperature of their blood at the most suitable point in all temperatures. Therefore they are not at the mercy of environment to the same extent as insects and reptiles which are unable to live actively except between certain limits of temperature. some plants grow in both cold and warm regions, and have a different structure in each place. But if they be transposed they will acquire the characteristics of their new environment. The new growing tissues alter. So environment can affect organisms: but the effect is not a fixed result. It is not the modification which can be transmitted but rather the power to modify. Now nearly all organisms reproduce sexually, so that there is, in consequence, a constant crossing and mixing of strains. So new hereditary factors are brought into the zygote (fertilised ovum) by the latent and not appear until later gametes (germ cells) of both parents

The most concise and complete ac-| possible to say what there for the fair. and cell is represented in the germ plasma by a separate 'determinant,' composed of hypothetical 'units of life.' These were supposed to be transmitted along the germ cells, but the theory becomes the different in the second process for the second process. assertions. An explanation of Mendel's results can best be given by means of an illustration. Take the and ' tion flowe bred seco: quarter crimson, one half pink, and

breed true; but the pink will never breed true, but will split up as before into one quality with a one half pink, and one service with the T. explained by of the constant stocks give rise to similar gametes. On crossing we get a zygote which gives a hybrid offspring. But if the different gametes were equally divided on recrossing we should always get a perfect hybrid. The fact that we do not is explained The fact that we do not be supported by assuming the gametes segregate into one half crimson-producing and one half white-producing, which on

this theory on heredity and variation may be surpmed up by saying that no character appears in an individual which has not been transmitted to it. The conclusion is that the total inheritance transmitted in a gamete is made up of factors which contribute to the development of similar characters. These characters may be developed by interaction with other hereditary and environmental characters. The crigin of all the domestic races of animals and plants is accounted for by the hypothesis that the various hereditary factors have been split up among a number of races, each losing some factor or factors. We are reproduce the colour of th made up of factors which contribute

count of what happens in these cases but they are no count of what happens in these cases is supplied by the work of Mendel matter, as was help to definite (1866); although Darwin had evolved Weismann. They may be definite a theory of pangenesis which was to chemical compounds, which enter some extent broken down by Weismann, who elaborated this theory into a theory of inheritance which supposed that each variable organ are said to arise spontaneously—this being another way of stating that nothing is known of their cause. The Darwinian theory is that great and sudden changes in environment intransmitted along the germ cells, but crease the variability: and this was the theory becomes too difficult in its higher aspects, and has the further disadvantage of resting on unproved stages, to heat and dryness for a assertions. An explanation of Mendel's results can best be given by differed considerably from the parents, or an intervention of the certain time, found that the offspring differed considerably from the parents, or an intervention of the certain time, found that the offspring differed considerably from the parents, or an intervention of the certain time, found that the offspring differed considerably from the parents of an illustration. and were constant stocks, for on and were constant stocks, for the crossing with the parent stock they gave rise to hybrids in Mendelian ratios. The question has further rank arisen as to whether the differences in offspring of the same parents are due me, to environmental action on the embryo, or whether they arise in the one quarter white. If the crimson or germ cells. Most differences are prowhite offspring be inbred they will bably germinal in origin. The further fact that the germ plasma is highly resistant to variation must not be lost sight of, for, but for this quality, all species would eventually cease to exist. Germ plasma can, of course, be damaged or weakened-chiefly by injury.

Struggle for existence and natural selection.—This is the least controversial of the primary factors of biological evolution, and once stated and understood, the truth is bound to be recognised. It expresses the fact that more organisms are born into the world than can survive. Darwin recognised that the truth of this universal struggle for life accounted for the whole of the facts of the economy of nature, together with all the facts of distribution, rarity, abundance, extinction, and variation. Organisms tend to increase in geometric ratio, so that their powers of increase are enormous. Russel Wallace shows that a single pair of flies produced twenty

disease, or locust swarms. The great-ments of the male sex, c.g. peacock's est struggle is between members of tail, etc., are not so easy to underthe same species. Struggle for existence, natural selection, and adaptation are very intimately connected. The struggle being the first cause, produces selection, which is only of avail in the light of the truths of heredity. Natural selection may be viewed as either a selection of the fit or an elimination of the unfit. power of selection is shown, as in the case of the decrease of aborigines, by the rapid spread of infectious diseases transferred by a race, habituated to it, to a race which has not been pre-viously subject to it. Unless the race happens to be adapted to resist the new disease, it quickly dies out. Further, the protective colouration of plants is a variation, which although not adaptive, does act selectively in the struggle for existence.

Isolation and sexual selection.—Still further, in the Darwinian theory of the struggle for existence we find the fact of isolation entering in. Selection without isolation might lead to evolution along a straight line, but with it 7 divergent

isolations. es of isola-

we may name geographical, physiological, and adoption of different modes of life. The first form is shown in seeds and microscopic animals which are borne by wind, water, or their own movement into new and different surroundings. Land organisms get separated by islands, mountains, or deserts, and marine organisms by land between seas or rivers. But if geographical isolation does arise that the does arise, then the type begins to vary through the action of the different environment. Physiological isolation may arise from different habits or temperaments or from sterility. As an example of the first, we may take the fact that the whites and negroes in America mingle with practically negligible production of crossed organisms. Sterility is the most important physiological barrier, and sometimes intercrossing and selffertilisation are prevented by sperm and ova developing at different times of the year. True sterility would be shown in those cases where no fertilisation is possible, or if possible then only imperfectly, resulting in a sterile offspring. In the higher organisms, the struggle of the male sex for the female, which only takes place among the higher vertebrates and anthropods, induces sexual selection. superiority in strength and fighting weapons of the male sex is accounted for by variations surviving which can give victory in this struggle to their maties; and the study of evolution owners. The ornamental develop- or embryology is incomplete unless

stand, but they are generally accepted as being due to the same effort to attract the female, and so secure pro-

pagation of the species.

Phylogeny.-One more subscience needs now to be added. If the evolutionary theory be adopted in B., then, turning this theory back to the study of embryology, morphology, and palæontology, we should be able to make out the affinities between adult organisms and discover lines of descent connecting the various branches of the genealogical tree. This leads to the study of phylogeny-the history of organisms showing their re-lationships. This study leads to two interesting facts, e.g. degeneration and convergence. Forms which differ widely in their adult forms are found to be closely allied in their young or embryonic stages. Fishes in caves lose their eyes, parasites lose their locomotive organs, and so degeneration is a phenomenon which must be noted by the biologist. It is a return along the pathway from the complex to the simple. Now this is put forward as a support of the evolutionary theory; for in the view of evolutionists, variation can be either progressive or retrogressive, and according to the need of the organism at the time, so does retrogression or progression take place. All along the evolutionary path are strewn derelict organs, once required, now of no use, or of no con-sequence in the struggle for existence. These organs are called vestigial and tend to disappear. More often, however, a vestigial organ is adapted to some new function. As a rule, evolution leads to a specialisation and divergence along the phylogenetic tree, but it sometimes happens that we get convergence in structure or function.

Place of biology among the sciences.

—By this time it is evident that B, considers all matters which throw light on the action of life on matter. It is further plainly to be seen that it borders on the verges of the realms of, and is closely related in its higher stages to, both the physical and mental sciences. A study of morphology or physiology in the light of the cell theory leads one down to the protoglasm, and it is the constant endeavour of a certain type of biologist to reduce this to chemical and physical formulæ. He has not yet He has not yet succeeded, but as is evident from recent scientific meetings, it is regarded as being extremely possible. Further, Mendelism can only be worked out by the aid of matheit is accompanied by some knowledge of paleontology, which is a geological science. Further, since B. in its widest sense deals with the phenomena of life, there is no sharp distinction. institutions. between parallelism and physics. This has gained a great and physics. This has gamed a ground deal of ground, but it should be borne in mind that there is also a school of philosophy which interprets everything material in terms of mind, and as far as matters are developed at present, both views are equally present, correct, i.e. neither is capable of verification. Taking as an illustration the function of digestion, we may work it out in this way. We can work it out in this way. We can correlate this process with psychic states of hunger and satisfaction, of physico-chemistry. cess of digestion in terms of chemistry and physics, or in terms of psychology.

organs withe the psychologist is concerned

with the mental that functioning concerned with

tion. So neither the physiological nor is started once again, the psychological aspect can be stated many branches of preven in terms of physico-chemistry. Therefore the three branches of science—is found to originate in goats, and is mental, physical, biological—are distinct although parallel.

sociology. Psychology, if not dependent upon physiology, exhibits breeding which Darwin made such phenomena which are comparable good use of. Then again the study of with physiological facts, and the observed social relationships of animals, which at any rate form a part of the cultivation of useful herbs. B., bear a curious analogy to human intrinsic accordance of the cultivation of useful herbs. So there is a definite or the survival of the fittest has between these three illuminated the science of sociology. sciences. For although mental states, which after all depends a great deal sciences. For although mental states, are always preceded by mental states, they can also be expressed in terms of feature, gesture, voice, etc.; and, on the other hand, the doctor constantly ascertains the state of the organism by inquiring into feelings, and verifies these by a chemical and physical diagnosis. Thus a school has established the relations for eye colour and certain diseases and malarisen which interprets biological and psychic states in terms of chemistry and physics. This has gained a great deal upon natural history. It has caused upon natural history. It has caused upon natural history. It has caused a new view to be taken of the study of mankind, and a careful sympathetic view is now characteristic of both anthropology and comparative reorganism by inquiring into feelings, and verifies these by a chemical and physical diagnosis. Thus a caused a new view to be taken of the study of mankind, and a careful sympathetic ligion. Again, the Mendelian theory has caused a new view to be taken of the study of mankind, and a careful sympathetic reorganism by inquiring into feelings, and verifies these by a chemical and physical diagnosis. Thus a school has established the relations for eye by the state of the comparative reorganism by inquiring into feelings, and verifies these by a chemical and physical diagnosis. Thus a school has established the relations for eye and the relations for ey afflicted persons, and can determine the proportion of their children likely to show these special characteristics. B. concerns itself with those microorganisms which act so powerfully, for the good or evil of mankind. Pasteur developed the study to the knowledge of the microbes of chickencholera, and silkworm disease, and now by inoculation experiments we have learned how to guard against some of the most deadly of these microscopic organisms. To this knowand we can further reproduce the ledge we can trace most of our modern process in a test tube in the laboratory improvements in sanitation and hyand outside the organism by means giene. Malarial fever was once quite Therefore we common in the fen districts, but it may say that we can define the pro- was stamped out by drainage and quinine before the fact was discovered that it is spread by germs, which are transferred from mosquitoes which feed on the blood of infected persons, and that the parasites increase in size and fill the body of their insect host (Ross and Manson). By means of the bite of one of these the cycle From this many branches of preventive medicine transferred to milk and cheese. Lord tinet although parallel. Again, lister applied this knowledge to although the science of sociology is a problem of social aggregates and septires, together with anæsthetics, the study of the individual furnishes valuable data in the study of the race, yet its final generalisations are in terms of race and not in terms in terms of race and not in terms of social units. So once again the parallelism is evident although the reduction to physical science is unthinkable.

Practical value of biology.—Although B. finds its highest expression in a contemplation of, and effort It is thought by some that the ad-Again, Lister applied this knowledge to

vancement of preventive medicine died of poison. An elegy was written and hygiene has resulted in a per- by his friend Moschus on the event, petuation of variations of human life Bion, a Greek scientist, belonged to which would have died out otherwise. Mental and physical defects are preserved and perpetuated in the off-mathematician. It was said that he spring, and this is only possible by taught the existence of countries this advangement in the health con-where the year is composed of a day ditions of life. To preserve the race it is thought that the theories of heredity, variation, selection, regression, etc., must be studied in gression, etc., must be sturelation to the individual. Great work in the foundation of this science was done by Sir F. Galton. There seem to be two schools of thought in the subject, both of which agree in postulating that the unfit (mentally and physically) should not be allowed facilities to reproduce their kind. One school aims at attaining this by segregation of these individuals into separate communities, and so preventing reproduction; while the other school is more drastic and proposes some form of sterilisation. As a science it is as yet in its infancy; as a science with public opinion behind it, it is untried; and so for all practical purposes it may as yet be merely summed up as a specialisation the Darwinian and Mendelian

theories with regard to human beings.
Conclusion.—Thus it will be seen that in neither of its two aspects is B. complete, although it is in a sufficient state of completeness to rank as a most valuable study for the

purposes of humanity.

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Bion, a Greek poet, of whose life no record is known to exist. He was born at Smyrna, or near by, and he lived about 100 B.C., probably in Sicily or Magna Grecia. His poems belong to what is termed the bucolic class. A few only have been preserved, and among them his Lament for Adon's is the best known. The subjects treated by him were generally the passions of the gods. B.'s poems are usually included with those of Theoritus. Hermann's and Ziegier's separate editions are the best. A. Lang reunslated most of B.'s poems. In service. The latter he soon left in 1795 C. F. W. Jacobs pub, his works at Gotha, and in the same year fley were pub. in London by Gilbert for some years at Heauvais, after Wakefield. In 1807 they appeared at Wakefield. According to the legend, B.

the family of Democritus. He lived at Abdera, and was famous as a mathematician. It was said that he

and a night.

Bion of Borysthenes (c. 275-c.241 B.C.), a Gk. philosopher. He studied at Athens under Crates of the Cynic school, and Theodorus the atheist. He then began his writings, of which a few fragments merely have de-scended to us. Hence it is practically unknown what opinions he held. He was in his time considered to be an atheist. He died at Chalcis in Eubœa.

Biondi, Giovanni Francesco (1572-1644), an Italian writer, b. in Liesena, one of the Dalmatian Islands. James I. was acquainted with him, and his knighthood was won by the successful execution of a secret mission to the Duke of Savoy. He wrote a History of the Wars of the Roses in Italian, and died in Berne, leaving a fame

Bised upon the elegance of his prose. Bionomics, or 'laws of life,' that branch of biological research which deals with the relations of organisms amongst themselves and to their environment. It thus includes the study of Heredity (q.v.), or the ten-dency of growing organisms to develop a symmetrical arrangement of parts which is characteristic of the species. How this tendency is trans-mitted is an old and still unsolved problem, though the researches of the followers of Mendel (q.v.) are sugges-The development of parental characteristics is dependent upon the maintenance of certain conditions in the earliest or pre-natal stages of growth, and these conditions are investigated and generalised in the study of Embryology (q.r.). Finally, the species being looked upon as one link in the whole chain of organic life, it is necessary to study how cerby the lave

have been ies studied

under the name of Evolution (q.r.). Bioplasm, a name given to living protoplasm, but especially that which

is concerned in the processes reproduction.

Biot, Jean Baptiste (1774-1862). physicist, was born at Paris. He was educated in the polytechnic school, after which he entered the artillery In 1803 he was elected a member of the Academy of Science, and a year later he was appointed to the Observatory of Paris. In 1806 he was made a member of the Burcau des Longitudes, and in 1809 became also professor of physical astronomy in the University of Paris. He pub. in the University of Paris. He pub. several excellent text books: among them may be mentioned Essai de Géométric Analytique; Traité Elémentaire de Physique Expérimentale, etc. He also wrote books on the astronomy of the ancient Egyptians, chinese, and Indians, all of which works were widely known. Nearly all branches of physics was recognized. works were widely known. Nearly all branches of physics were consider-all branches of physics were consider-ably advanced by his labours, for his white. It grows quickly, but does whole life was passed in study and not live long. It is found abundantly

talises into hexagonal prisms. It is often called magnesia mica, as disoften called magnesia inica, as distinct from muscovite or potash mic. The most important variety of B. is meroxene, which is found in volcanic deposits. It was from fine crystals of this variety, found near Vesuvius, this variety, found near Vesuvius, that mineralogists were able to determine the crystalline form of mic., In N. America the B. tree is as usewhich was former the control of the country of the determine the crystalline form of mic., In N. America the B. tree is as usewhich was former the country of the country o to the hexagona systems. Other

rubellene, found in many volcanic rocks, voigtite, found in gravel rocks, phlogopite, which has a large proportion of silica, and lepidomelane, which is rich in ferrous and ferric oxides. When ferrous oxide quite replaces magnesia, iron mica results. B. mica is much more readily decomposed than muscovite.

Bipinnaria (Lat. bis, twice, penna, a feather) is the name given to the larva of a starfish. Its shape is peculiar, and has long arms. which at firs gradually exte

enclose nearly and lower halves of the body.

quantity, e.g. $x^1+ax^2+bx^2+cx+d=0$, where x is unknown.

quantity, e.g. $x^3+ax^3+bx^2+cx+d=0$, part of the world. The Laplanders where x is unknown.

Bir (Arabic, a well), a town in Asiatic Turkey. It is situated on the l. b. of the Euphrates at its nearest approach to the Bay of Iskanderun.

It is about 80 m. N.E. of Aleppo, on the main route from Aleppo, on the main route from Aleppo, to the property a considerable trade with formerly a considerable trade with Bagdad by river. Pop. 9000.

Birbhum, a district in Bardwan or Burdwan, Bengal, India, with an area of 1752 sq. m. The chief agric, product is rice.

Birch, a tree or shrub belonging to the genus of Betulacee. There are about twenty-five species of B., and while the majority are trees of medium

whole life was passed in study and not live long. It is found abundantly teaching. He was one of the most eminent physicists and mathematicians of his time. He died at Paris.

Biotite, an important member of the Mica group of minerals. It is a Russia, where it is of the greatest silicate of aluminium and iron with magnesium and potassium. It crystalizes into heavergood writing. It is factured into furniture, used for upholstery and for carriage building. Thousands of spoons, greatly used in Russia, are made from it. The bark is made into canoes, snow shoes,

ters, and also used for house roof-There are several kinds of B. in ing. N. America: the white is used in the last-mentioned ways. The 'black' B., another variety, is sometimes called the 'red B.,' and is exceptionally hard, hence it is very valuable. The leaves are frequently used for making tea, which has an agreeable flavour. The 'yellow B.' of Nova Scotia is another species, and the 'paper' B. is so called because it can be thinly peeled into sheets and used in the place of paper. B. oil is manufactured from the outer layers of the bark, and mixed with a fine meal it forms food for pigs. In early spring. when the sap is just beginning to rise. it is drawn from the trunk, and on Biplane, see Aeronautics.

Biquadratic (Lat. biquadratus, twice squared), an equation which involves almost everywhere in the northern fourth power of the unknown almost everywhere in the northern part of the world. The Laplanders part of the world. The Laplanders part of the world. The captured in stuffing their beds, for fuel.

the Royal Academy, where he ob-parents in London. He was unfortu-tained two medals. He won £600 in nately denied a university education. 1864 from the Art Union of London He, however, qualified himself by by his life-size group 'A Wood dint of great perseverance, and appli-Nymph.' He exhibited at Burlington eation to study, for the ministry, House. 1880, and in that year his work of the Griffin, on the Temple Bar memorial

worked in the city and travelled in Russia, Denmark, and Sweden, dur-ing which time he had the friendship of the Crown Prince of Prussia. In 1812 he returned to London and took up literary work. In 1841 he was made a foreign honorary member of his horse, the Literary Society of Berlin. In Birch, In 1846 he had a home offered him in the King of Prussia's palace. His works are chiefly translations: Faust, Banquet of the Seven Sages, Nibelungen Lied, etc. He died in Prussia. Birch, Samuel (1813-85), an anti-

quary and Egyptologist, was born in London. His father was the rector of a London parish. He was educated at Merchant Taylors' School, and in 1834 he was employed in the Record Office. 1836 he entered the British In Museum as an assistant in the antiquities dept. He thus acquired a great deal otian antiquities :

1861 he was eper-ship of that branch. In 1862 he re-ceived the LL.D. degree from St. Andrews, and the same from Cambridge some ten years later. In 1874 he became president of the London Congress of Orientalists. He wrote largely, and contributed to several journals, etc.; he trans. many hiero-glyphical works, and compiled Egyphad a keen

> inguage also. painstaking

man, and extremely laborious in his studies.

Birch, Samuel (1757-1841), an English dramatist, was born in London. He was the son of a baker at Cornhill, and was educated at a private school, after which he worked in his father's business. He married in 1778, and had thirteen children. He became a volunteer colonel, and in 1814 he was made Lord Mayor of London. In 1836 he disposed of his confectionery business, and retired from public duties. He wrote numerous musical dramas and poems, including The Adopted Child, The Smugglers, The Manners, Fast Asleep, A Victim of Romance, etc., etc. His plays were performed at Covent Garden, Drury Lane, and Haymarket.

He exhibited at Burlington cation to study, for the ministry, He became an A.R.A. in and entered the Church of England. His ordination took place in 1730. In 1734 he became chaplain to the in Fleet Street, was accomplished.

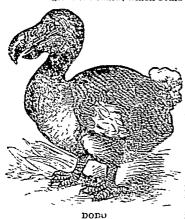
Birch, Jonathan (1783-1847), the had many changes. In 1735 he betranslator of Faust. was born in came a member of the Society of London. From 1798 until 1812 he Antiquaries. He took his degrees in worked in the city and travelled in 1752 and 1753—M.A. and D.D. He did a considerable amount of literary work, compiling and editing. He also transcribed a great number of works in the library at Lambeth Palace. He died from the effects of a fall from

Birch, Walter de Gray, Eng. archæologist. He was born in Jan. 1842, and was the son of Dr. Birch, the Egyptologist. He was educated at Charterhouse and Trinity College, Cambridge. In 1864 he entered the MSS. dept. of the British Museum. His productions include The Commentaries of Alfonso d'Albuquerque and The Cartularium Soxonicum. For twenty-two years he ed, the British Archæological Asso-ciation's Journal, and has issued many treatises on subjects dealing with archeology and ancient history.

Birch-Pfeiffer, Charlotte (1800-68),

was an actress and dramatist of Ger. origin, who was born at Stuttgart. As soon as she was thirteen years of age she began her public life at Munich, and from that time she played at Berlin, Hamburg, and seventhan the state of the sheep other places. She was very successful in her acting. She was married when she was twenty-five to a Dr. Birch of Copenhagen. She played afterwards in Amsterdam, St. Petersburg, and Pestil. Later on, she became sole manageress of the Zurich theatre, and then she took to writing plays and then sne took to whom have and dramas. She won more popularity for her play writing than for her acting, though her works reached no very high standard. They are still favoured in Germany. She dramatised Jane Eyre, and her works resired publication in twenty-four vols. ceived publication in twenty-four vols. at Leipzig. In 1844 she accepted an engagement at the Theatre Royal, Berlin, where she stayed for the rest of her life.

Bird. According to the definition of Dr. Gadow. birds are 'oviparous, warm-blooded, amniotic Vertebrates, which have their anterior extremities transformed into wings. Metacarpus and fingers carrying feathers or quills. With an intertarsal joint. Not more than four toes, of which the first is a This transformation of the hallux.' fore-limbs of Bs. into feathered wings Birch, Thomas (1705-66), an his-torical writer, was born of Quaker modifications of the internal structure arising from it form the basis of uropygial borne on the pygostyle is classification of this group of animals an oil-gland used by Bs. in which it is known as Arcs. The wing consists present when preening their feathers, known as Arcs. The wing consists of the typical parts of a fore-limb, the humerus, radius, and ulna, carpus, metacarpus, and digits. The first digit is the pollex, or thumb, to which some feathers, known as alula spuria, or bastard wing, are attached; the second digit is the index, which bears



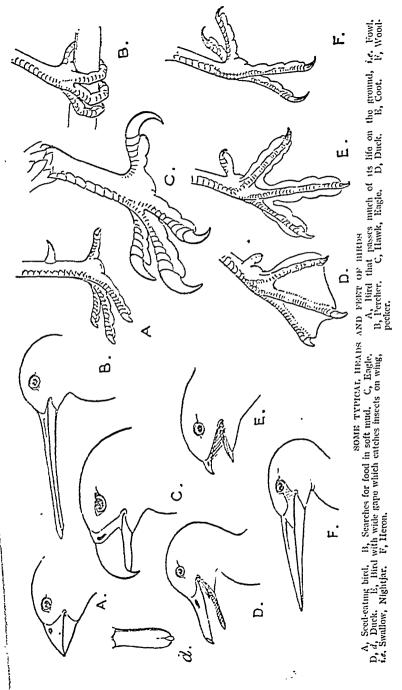
the large feathers known as the primeries or manuals, usually ten in number. The primary feathers with the secondaries or cubitals, which are attached to the ulna, form the large wing-quills, called remiges, which are used in flight. The sternum, or breastbone of Bs., is affected by their powers of flight, bearing a projecting carina, or keel, when the power is present for the attachment of the great pectoral muscles. When the Bs. are incapable of flight the keel is absent or greatly The vertebral column is completed in the caudal region by a flat plate known as the pygostyle, forms a support for which forms a support for the rectrices, or steering tail-feathers, and for the uropygial gland. The legs are composed of a femur, tibia, and fibula, and the bones of the foot; the feet have often four toes, but in many cases there are only three. In swimming-birds the legs are placed well back, while in those which have the tongue is the first organ to aid in an upright carriage the balance of the digestion, then comes the esophagus, body is preserved by the forward and this has frequently a dilatation position of the legs. The feet are known as the crop in which the food

for their skin is unprovided with sebaceous glands. The eyes are furnished not only with an upper and a lower eye-lid, but also with a nictitating membrane, semi-trans-parent, and covering the eye at the volition of the owner. The vascular system of Arcs contains warm blood, which is kept usually at a higher temperature than that of mammals; death from cold is a rare occurrence unless allied with torpidity and starvation. The respiratory system is extremely curious, as the lunes themselves are very small and are prolonged into air-sacs with which are connected a number of air-spaces in the bones. These air-spaces are found in the species which are powerful flyers and require the lessening of bodily weight, but in young Bs., small Bs., equatic and terrestrial Bs. they are either absent or negligible. The organ of voice is not the larynx, but usually the syrinx, a peculiarity of this class formed at the bifurcation of the trachea, and the modulations are effected by adjoining muscles. The heart of a B. is enclosed by pericardium, and consists of a right and a left half; there is no diaphragm between the thoracic and abdominal regions. Digestion takes place in the œsophagus, stomach, and intestines, but it is a highly specialised function.

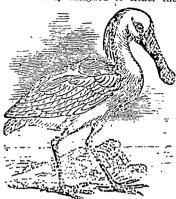


GANNET

known as pedes aradandes, or wading is softened; the food then passes into feet, according to their function, and which, the procentriculus, the process the latter are much more completely is carried out further, then follows feathered than the former. No exist-the gizzard, or ventriculus, which coning species of Bs. possess teeth. The

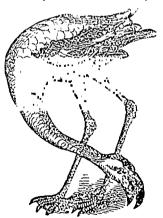


for the grinding aft noticeable in suc and grain. The



EUROPEAN SPOONBILL

male or the female B. It is customary for the male to provide the material and for his partner to perform the architectural work, but in many cases the female provides her own material. It usually falls to her lot also to do the sitting, but there are cases in which the pair takes this in turn, and



FLAMINGO

other cases in which it is performed by the male alone. The cuckoo neither builds a nest nor rears its own young, but places the eggs in the nest of oldest B. known, the fossil Arch another bird and leaves the foster opleryx, has been of great value.

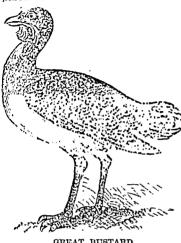
mother to care for them. The position which Arcs hold in the animal king. dom is higher than that of Reptilia, and lower than that of Mammalia: be definitely assigned to either the with the former class they have great





GOLDEN-BREASTED TRUMPETER

classes, but Bs. are never viviparous. The scales of reptiles may be compared with the feathers of Bs., but



GREAT BUSTARD

the blood of the Reptilia is cold while the blood of Aves is warm. In the development of brain, memory, and sight the lower class compares unfavourably with the higher, but the chief difference between the two lies in the adaptation of the B.'s forelimbs to flight. This adaptation, as well as a keeled sternum, is to be found in the reptilian Picrodactyl, but in the absence of farthers and in the in the absence of feathers and in the general structure of the skeleton this fossil differs greatly from a B. Among



TERN

mainmals the bat is also able to fly, but the specialised structures by which it accomplishes this feat is entirely different from those found in teeth in grooves in the jaws and no Aves.

in such research, and Huxley has cludes the simple genus Archæopclassed Bs. and reptiles together in his group of Sauropsida. There is a which is several times subdivided, at resemblance in the generative organs and oviparous condition of both Ratitæ, Odontoleæ, and Carinatæ.



PUFFIN

The Ratitæ receive their name from the resemblance of their breastbone to a flat-bottomed boat; they are flightless Bs. with reduced wings, and include, in addition to extinct species, e.q. the moa, living Bs. such as the ostrich, rhea, cassowary, emeu, and kiwi, or apteryx. The Odontolcæ are extinct marine flightless Bs. with



keeled breastbone; an example is the genus Hesperornis. The Carinata In the classification of Bs. zoologicus Hesperoruis. The Carinata is much the largest sub-order of Bs., wo unequal orders, the Archworder of Bs., which in receives its name from the resemblance of the sternum to a keel, but in , and using them as paddles when in several flightless forms, as the extinct the water. The Procellariformes, or



GIGANTIC KINGFISHER

Carinata are by most zoologists based on the system of Dr. Gadow, and are fourteen in number. first of these, the Ichthyornithes, or fish- and bird-like tribe, consisted of toothed species of powerful flight which are now extinct. The tribe of Colymbiformes, or swimmers, consists of divers and grebes, all of which



HOOPOE

are water-Bs, with webbed or lobed as the plover, cyster-catcher, avocet, feet, upright bodies, and short tail-curlew, and snipe; some can swim as feathers. The Sphenisciformes, or penguins, are flightless marine Bs. puffin; others, as the sand-grouse, covered with feathers, having the inhabit deserts; while others again wings without large quill-feathers are land-Bs., feeding on grain and

dodo and the living parrot—genus petrels, are marine Bs. with webbed Stringops, this keel is absent or feet and capable of powerful flight; greatly reduced. The subdivisions of the albatross and Mother Carey's chicken belong to this group. Ciconiiformes, or stork-like Bs., have feet adapted for wading, and inhabit



marshes as well as the sea and inland ponds, e.g. the gannet, tropic-B., cormorant, heron, bittern, stork, ibis, spoonbill, and flamingo. The Anseriformes, or goose-like Bs., are aquatic and include all geese, swans, ducks, and screamers. The Falconiformes are Bs. of prey with strongly-clawed toes and curved beaks, as the hawk,

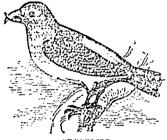
vulture, eagle, kite, buzzard, falcon, and The osprey. Tinamiformes, or tinamous, is a small tribe of earth-Bs.,strong and swift The Galflight. liformes, or fowl-Bs., like are which those run along the ground or perch on trees, c.g. the turkey, brush curassow. peacock, pheasant, domestic fowl, turkey, grouse, partridge, and The quail. Gruiformes, or crane - like Bs.,



LYRE-BIRD

include the water-hen, rail coot, trumpeter, and bustard. Four groups are placed in the Charadrifformes, or plover-like Bs., which vary greatly in habit; some can both fly and wade,

seeds, e.g. the pigeon, dove, and dodo. of paradise, a native of New Guinea, The Cuculiformes, or cuckoo-like Bs., are arboreal, and are represented by the touraco in one group, and by the parrot in the other. Representatives of the arboreal Coraciformes, or raven-like Bs., are the kingfisher, hoopee, owl, goat-sucker, swift, mouse-bird, quesal, toucan, and woodpecker. The last, and largest, tribe is that of the Passeriformes, or sparrowlike Bs., all of which are perchers and have few variations of internal structure. To them belong the broadbill, cock of the rock, lyre-B., bush-shrike, lark, wagtail, flycatcher, thrush, wren, swallow, butcher-B., tit, B. of paradise, rook, starling, weaver-B., American oriole, crossbill, and finch.



CROSSBILL

See A. Newton's Dictionary of Birds, 1893-96; A. H. Evans' Birds, 1899; T. H. Huxley's On the Classification of Birds, 1867 and 1868; C. L. Nitzsch's System der Pterylographie, 1840; L. Stejneger's Birds, 1885; H. Seebohm's History of British Birds, 1883-85.

Bird of Paradise, a name applied to the various members of the family Paradiscide, which are natives of Australia and the Malay Archipelago. They are closely related to Corvide, or erow family, and Sturnidge, or starlings, but though the females are inconspicuous in appearance, the plumage of the males is very gorgeous and varied in colour. They are smallish birds, extremely active and have compressed beaks, large toes, and strong feet. Their food consists chiefly of truits, seeds, and the honey taken from flowers, but it may also include insects and small animals, such as worms. The bower-birds to this family,

Paradiscide are Paradisca apoda of Linneus, the great bird of paradisc, about 18 in. in length, the males having brilliant plumes of great length springing from beneath their

which has scarlet and green plumage; Which has scarred and green phanese, Philorhis paradisea, black riflenan of N. Australia: Diphyllodes magnifica, magnificent bird of paradise; Pleridophora alberti, common to New Guinea. Sec A. R. Wallace's Malay Archipelago, 1890.

Bird, Edward (1772-1819), English painter of genre, was born at Wolverhampton, where for some years he was engaged in designing for Japan-ware. When his apprenticeship was over, he resolved to become a painter. and supported him-elf as a drawingmaster at Bristol. In 1809 his 'Good News 'was accepted by the Academy. and his reputation became established. and his reputation became established.

He soon came under the patronage
of Princess Charlotte, and in 1815 he
was elected R.A. Well-known paintings of his are: 'The Country Auction,'
' Village Politicians,' 'Blacksmith's
Shop,' The Field of Chevy Chase,'
Ilis last historical piece, 'The Embarkation of Louis XVIII. for

France, was left unfinished.

Bird, Golding (1814-54), physician, was born in Norfolk, and educated privately. He entered Guy's Hospital as a medical student in 1832, and in 1838 he took the M.D. at St. Andrews. He became lecturer on natural philosophy at Guy's in 1836. and later on lectured on medical botany, etc. He married in 1842 His works include Pathology and Therapeutical Indications, The Liements of Natural Philosophy, etc. He died at Tunbridge Wells in 1854.

Bird. John (c. 1709-76), a matheand mechaoublished a of dividing

Astronomical Instruments.

Bird, Robert Montgomery, M.D. (1804-54), an author, was born at Newcatle, Delaware, America. He studied for the medical profession, and practised for about a year: but preferring literature, he soon left his profession and became an author. He wrote two or three very successful tragedy plays. The Gladiator, The Broker of Bogota, and Oraloosa made him famous. His books, too, were very popular; among them were Calavor, pub. in 1834, also A Merican Romance in the same year, The Infidel in 1835, Nick of the Woods in 1837. He died at Philadelphia.

Bird, William, see BYRD, WILLIAM. Bird-catching Spider is a large r constructive hairy spider found in many hot pecies of the countries. It belongs to the genus countries. It belongs to the genus Mygale. When stretched out, it takes up a space from six to nine in. across, although the body is only about two in. It lives in trees, or in hollows under rocks, and there it spins its wings; Cincinnurus regius. king bird curiously shaped web or nest. It goes

of Asia and Europe, being frequently in pasture, on banks, and by the found in Britain. The Scottish name wayside, for it is the Hagberry, which means Bird's Foot wood berry. It belongs to the same Trefoil, or Lotus genus as the ordinary cherry and the corniculatus, is a plum, but unlike the wild cherry, the species of Legu-flowers bloom after the leaves have minose which is fully appeared in early May. The very common in fruits are black and very small, being, British meadows, in fact, no higger than peas. They are and is noted for very bitter in taste, and are really its beaked carina only fit for birds' food. They are, or keel and nearly however, sometimes used for colour-straight Jegume. ing brandy and wine. The wood of It affords good

Bird Lice, or Mallophaga, is the received its name among given to a family of insects or from the resemparasites which affect birds. These parasites are shaped like lice, but they of pods to a bird's are not blood sucking creatures, since their mouths are formed for biting. Biretta is a cap Their bodies are ringed round the which is worn by thorax. They feed upon the skin of Roman Catholic the birds and eat the feathers and priests. Its shape sometimes the blood too. It is found is square, with that they commonly affect the fowls edges standing up. of the farmyard, and if they are not bishop is purple, while that of an destroyed they cause considerable ordinary priest is black. discomfort and unpleasantness. Not Birgus, the generic name of some only do these lice infect birds, but decaped crustaceans of the family they will sometimes be discovered in Cenobitida which are chiefly terresanimals. Where fowls are kept near trial. They are hemit-crabs dwelling cats or dogs, the latter are very likely in a hole by day, and coming forth at to be affected also by these pests, night to seek for food, which consists which feed on the hair and fur. It largely of the fruit of the cocca-nut seems, however, that the trouble is tree. B. latro, the robber-crab or lessened, for the lice do not appear to multiply quite so quickly on the mammals.

Bird Lime is a sticky substance obtained in various ways. It is got from Kerman, and 240 m. S. from Mished. the bark of the holly tree, and from Birkbeck, George (1786-1841), an mistletoe, and boiled with water. It Eng. doctor, who was born at Settle in is also prepared from flour; the starch. Yorkshire, and who distinguished him-

Bird-Pepper, sec CAPSICUM. Bird's-eye Limestone is a limestone found in the Trentin group of N. America. It obtains its name from the white cross sections that appear in the stone.

Bird's-eye View, term used to describe drawings made in a manner of perspective where the eye is supposed to look down from above on to the land illustrated. The difficulty naturally is to show the relative vertical heights accurately so as to give a correct impression.

Bird's Foot (Ornithopus perpusil-

out at night to hunt for its food of lus), a small wild plant belenging to insects and, as is stated, to ensuare young birds. It has been said that the webs are strong enough to make bird travelling difficult in the forests.

Bird Cherry is a tree which grows sometimes cultivated on the conwild among the damp places in woods. It is a native of the temperate regions has clover-shaped leaves, and grows of isia and Europe being frequently in assume on hanks, and by the

Biretta is a cap

Roman Catholic priests. Its shape pird's FOOT TREFOIL

The cap of a

m. · Kho-

became a doctor. He practised first at Leeds and then in Edinburgh, later accepting the chair of Natural Philosophy at Glaszow. He later came to London where he took up the work he had already begun at Glaszow and should read begun at Glasgow and showed great interest in the working classes. He helped very largely to form the Mechanics' Institute of which he was the first president. Later the name of the institute was changed to B. College. He died in London.

Birkbeck College is a recognised institution of the university of London which provides full courses for various internal degrees for students back. However, in 1843 parl powers of both sexes. It was founded by were obtained for the erection of a Dr. George Birkbeck, with the assistance of Bentham, Brougham, and bbett, as the London Mechanics stitute in 1823. The original idea the founders was to instruct the founders was to instruct Cobbett, as the London Mechanics' Institute in 1823. The original idea

e a great In 1884 Bream's

Birkdale, a tn. in the S.W. of Lancashire, England, situated on the coast. It is a suburb of Southport, and is about one mile distant.

Birkebeiner, the name of a political party which existed in Norway in the 12th and 13th centuries; the name arising from the birch-bark footwear which the poverty of the members compelled them to substitute for boots. The party arose in opposition to Erling Skakke and his heir Magnus, and fought for the descendants of Sigurd Mund, i.e. for King Sverre and his heirs, being successful in 1218 in having Hakon Hakonsson elected

King of Norway.

Birkenfeld, the name of a tn. and dist. in Germany. The dist. is a principality belonging to Oldenburg, but situated at a distance of 300 m. from that place and entirely sur-rounded by Prussian ter. It has also a system of gov. separate from that of Oldenburg but responsible to it. has an area of about 195 sq. m., and is mountainous and well wooded. chief products are cattle, flax, hemp, and iron. Its pop, in 1900 was approximately 43,500. The tn. is the cap, of the above-named dist, and has a pop. of 2500. It is situated on the Lahn, an affluent of the Rhine, and is distant from Trier about 25 m. in an E.S.E. direction. It is the centre of

the cattle trade. Birkenhead, a co. and parl. bor. of England, situated in Cheshire at the mouth of the R. Mersey. It has an area of 3848 acres. It is a tn. of nurely modern growth, having a very meagre and unextensive history previous to about the year 1820, when it was simply a tiny hamlet. It is situated in the eastern coast of the Wirral peninsula, and is served by a joint service of the L. and N.W. and G.W. railways, together with the Wirral railways. A benedictine priory of Byrkhed was founded there in the of Byrkhed was founded there in the twelfth century by a Norman baron, and to this priory was granted the monopoly of ferries by Edward II.

Birket-el-Keroun (lake of horns), a lake of Middle Egypt, situated Previous to about the year 1820 it had a pop. of less than 50, and in and crossed by 29½ N. It has an area 1822 this pop. had not risen to more than 300. It is opposite the tn. of Liverpool, and for some time the liverpool, and for some time the jealous rivalry of Liverpool kept it Birket-el-Mariut, or Mareotis, a

deck, which was first planned by William Laird, and which was opened in 1847. Eleven years later, this dock was handed over to the Mersey Docks and Harbour Board, a corporation created especially to control the harbourage of the Mersey. The tn. itself had also during this time grown and improved. In 1836 it received the grant of a market, and in 1861 was made a parl. bor. In 1877 it received a municipal charter which included in the town the dists. of Transmere, Claughton, Oxton, and Higher Bebington. It contains at the present time many fine buildings, including a market hall, a town hall, and a magnificent bor, hospital and art school, both of which were given to the town by Sir John Laird. railway communications of the town with Liverpool are good, a tunnel connecting the two tns. being opened by the Prince of Wales in 1886. The town is also connected with Liverpool by its ferries, the monopoly of which was bought from the lord of the manor in 1842. B. has itself acquired a great trade, having a large export trade in coal and manufactured Its principal docks are the Morpeth, Morpeth Branch, articles. Egerton, and Wallasley Docks, the total area of these docks being about 160 acres, and it has about 91 m. of quayage. Huge storage warehouses are crected along the quays. Pop. 130,832 (1911), showing an increase in the last census of 19,917.

Birkenhead, British troop-ship, wrecked off Point Danger, Simon's Bay, Feb. 26, 1852. The soldiers were mustered on deck and remained steadily in their ranks while the boats took off the women and children; 436 men were drowned. King William of Prussia ordered the story to be read out to each of his regiments on parade, as an example of disciplined heroism.

Birkenhead, Sir John (1616-79), secretary to Laud, was a leading spirit during the sojourn of the king and court at Oxford at the time of the Civil War. He managed and contributed brilliant articles to the Mercurii Aulici, a publication devoted to the Royalist cause. works he wrote Paul's Churchyard; Libri Theologici, Politici, Historici, and The Assembly Man. Among other

lake in the N.W. portion of Lower electro-plating, and the manuf, of Egypt, to the S.E. of Alexandria. It chemicals. The city has many fine Egypt, to the S.E. of Alexandria. It chemicals. The city has many fine was almost dried up when the English in the course of their operations the Fr. in 1801, cut across the fares of New Street. Corporation against the Fr. in 1801, cut across the isthmus separating the lake from that of Abukir. The sea-water flowed in and covered a space of land measur-

Nonconformist divine who joined the Church of England and became curate i to the Rev. Ed. Bickersteth, then Canon of Ely Cathedral. He was elected a fellow of Trinity College, and succeeded F. D. Maurice as professor of moral philosophy at Cambridge. B, took part in many theological controversies and wrote numerous books.

pamphlets, and letters.

Birmingham, a city and municipal co. and parl. bor., the chief hardware centre of the world, and, next to centre of the world, and, next to Manchester, the largest manufacturing tn. in England, is situated in the N.W. of Warwickshire, 113 m. N.W. of London by rail. With Wolverhampton, Walsall, Wednesbury, and other towns of the 'Black Country' dist.. B. forms one of the most important of industrial centres. Including its suburbs, which extend into Worcestershire and Stafford-shire the city embraces an area of shire, the city embraces an area of about 20 sq. m., the site being of an undulating nature (200-600 ft. above sea-level). The estimated pop. (1911) is 1,000,000. The prin. suburbs are, on the S.W., Edghaston and Har-borne, which include the botanical gardens and the Warwickshire co. cricket ground; further S., the manucricket ground; iurther S., the manufacturing dists. of Bournville and Gardin Worcestershire, Northfield and King's Norton; to the E. and S.E., Saltley. Small Heath, Yardley, and Moseley; on the N., the municipal bor. of Aston Manor; on the W., Soho dand Handsworth. The price of Mr. and Moseley and Manor; on the W., Soho dand Handsworth. The price of Mr. and Manor of the connecting the subuples connecting the suburbs centre of the city are serve

corporation tramways and by motoromnibuses. B. is famous for its
metal industries, which have been
important since the latter half of the
total results. The most important

The century. The most important

The control of the city are serve
was responsible
to the 'best-governed city in the
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to the city are serve of these is the brass-working industry. Conquest, the place having been a Next in import. Next in import

concerned with .

git, and from £203. After the Consive manufs, are those of pins, but- quest it passed into the possession of tons, and other dress passession of tons. tons, and other dress accessories, nails, screws, steel pens, tools cycles, motor cars and accessories, steam and gas engines, and machinery. Other important industries are rail-remained in the hands of the family way-carriage building, glass-making, until 1527, when the Duke of North-

Street, Edmund Street, and Colmore Row, and amongst the chief buildings, and covered a space of land measuring 30 m. by 15 m., and though the isthmus has since been restored, 100,000 ac. of cultivable land is still Millais, Hunt, David Cox, and others, in addition to valuable collections of collections of collections. arms, Oriental metal-work, and pot-tery; the Town Hall, capable of hold-ing 5000 people; Mason College, the Central Free Library, the Co. Court,

> Central Hall of the Wesleyan Metho-Foremost among these is the up-to-date University, with its special feature of a faculty of commerce. Other important institutions are the King Edward VI. Grammar School, founded in 1552, the Midland Institute, the Municipal Technical School. the Municipal School of Art, and Queen's College. Amongst the many charitable institutions of B. should be noticed the general hospital in St. Mary's Square, the Queen's Hospital, the children's, women's, and homeopathic hospitals, the Blackwell sanatorium, the blind institution, and the deaf and dumb asylum. The chief open spaces are Warley Woods and open spaces are warely would and Park, Aston Park, Cannon Hill Park, Soho Park, Summersfield Park, Ad-derley Park, Victoria Park at Small Heath, and Victoria Park at Hands-worth. The gov. of the city is ve-ted the city council, consisting of hteen aldermen and fifty-four in fifty-four eighteen councillors. The chief magi bears the title of Lord Mayor. magistrate who, as mayor

was responsible

Domesday Book, and

was killed

himself by preferring a false charge lie died at Perth Amboy, New Jersey, against Edward de Bermingham.

After the attainder of Northumbers land the property passed through various hands. In the Civil War B. W. from Kuka, on the Yeu. It covers with the property passed through light and the propert evinced strong parliamentarian sym- a large area, and has now a pop. of pathies, for which it paid by being 10,000 inhab., as opposed to 200,000 sacked by Prince Rupert in 1643. formerly. Subsequent outstanding events were. Biron, Armand de Gontaut (1524-the devastating plague of 1665, the 92), a Fr. soldier of the 16th century. 'church-and-king' riots of 1791, in He saw service with Brissac in Italy, which the famous Dr. Priestley was and although wounded and made such an important figure, and the permanently lame in early life, he Chartist riots of 1839. The town was continued an active career as a sol-Chartist riots of 1839. The town was continued an active career as a solenfranchised in 1832, and now returns dier. He distinguished himself in the seven members to parliament. It Catholic causes at Dreux, St. Denis, became a bor. in 1838, and a city and Moncontour, and commanded in 1889. Amongst the distinguished the royal forces at the siege of La men closely connected with B., in Rochelle, as a reward for which he addition to those already mentioned, was made a marshal of France. After have been James Watt, who, with 1589 he supported the interests of Boulton, perfected the steam engine here; William Hutton, the historian; Joseph Parkes, and John Bright. See Bunce's History of the Corporation of Birmingham, 1885; Dent's Malking of Birmingham, 1894; and (1562-1602), son of the above, distinguished himself by his bravery 1990.

distribute of the co. of in the U.S.A., ontgomery. It is

the most important seat of the iron industry of the Southern States, having numerous factories, mills, and foundries. This has accounted for its rapid growth from a tn. of 3000 inhab. in 1880 to a city of 50,000 inhab., whilst the land round it has propor-

whits the land round it has proportionately increased in value.

Birmingham Daily Post, a newspaper estab. in 1857 by Mr. John Feeney and Sir John Jaffray, being ed. till 1898 by Mr. J. Thackray, who was then succeeded by Mr. A. H. Poultney. It was the first penny provincial paper. At its foundation was then succeeded by Mr. A. H. fought in La Vendée, and he was Poultney. It was the first penny provincial paper. At its foundation the politics of the paper were Radical, principally, it seems, of leniency, he and after the Home Rule split of 1886 was executed in December 1793. the politics of the paper were Radical, and after the Home Rule split of 1886 it supported the Liberal Unionist associated with Mr. Chamberlain's Biron, Ernst Johann de, Duke of propaganda, and is now Unionist in Courland, and for a time practically its views. The present editor is Mr. Emperor of Russia. The son of a

and Fleet Street, London.

Birnam, a hill in Perthshire, about
12 m. N.W. of Perth and near the tn.
of Dunkeld. It was anciently in cluded in a royal forest, and has been immortalised by the reference to it in Shakespeare's Macbell. Near it in Shakespeare's Macbeth. Near Dunkeld also there is a small vil. called B.

Birney, James Gillespie, American politician. He was a native of Dan-

umberland managed to transfer it to presidential chair in 1840 and 1844.

Biron, Armand de Gontaut (1524-

and brilliance. He was made admiral of France, and in 1594 a marshal of France. He fought valiantly for Henry IV., and was employed by him on many diplomatic missions, but in 1602, accused of treasonable correspondence with the Spaniards, he was

executed in the Bastille.

Armand Louis de Gontaut (174793), a descendant of the above. He
fought during the War of American
Independence under Lafayette, and on his return was made a marshal. On the outbreak of the Revolution he joined the revolutionaries, and was

Biron, or Bieren, see Anna Ivan-

its views. The present editor is Mr. Emperor of Russia. The son of a G. W. Hubbard, and the paper has landed proprietor in Courland who offices in New Street, Birmingham, won the favour of the niece of Peter the Great, and adopted the style de R from the Fr. line of dukes. When B. from the Fr. line of dukes. his mistress became Empi Empress Russia, he was created Duke of Courland, and for some considerable time ruled Russia. He was a thorough autocrat, and could not brook opposition, his period of power being marked by many executions and exiles. On the death of the Empress exiles. On the death of the Empress Anna Ivanovna, he assumed the ville, Kentucky, and became a candi-date of the 'Liberty' party for the an administrator. He was, however, exiled to Siberia, from which exile he labour, for any person, including the was called by the Empress Elizabeth in 1741, and on his return he retired

into private life. He died in 1772.

Birostrites is a name which was given to a fossil by Lamarck. It is the shell of a molluse of the order Teleodesmacea and family Radioli-tide, and occurs in the Middle and

Upper Cretaceous.

Birrell, Augustine (b.1850), politician and man of letters, born near Liverpool, the son of a Nonconformist minister. He was educated at Amersham Hall School and Trinity Hall. Cambridge, where he graduated in 1872. He subsequently studied law, became a barrister in 1875, and a bencher of the Inner Temple in 1903. From 1896-99 he was Quain professor of law at University College, London. He entered parliament as Liberal member for W. Fifeshire in 1889, and made a name as a graceful and witty orator, his efforts in this direction giving rise to the expression 'birrelling.' He was defeated in N.E. Manchester at the 1900 election, but reentered parliament in 1906 as member for N. Bristol, and Minister of Education in the Liberal cabinet. The failure of his Education Bill to pass the House of Lords led to his resignation in 1907, when he was appointed Chief Secretary for Ireland. The first series of his Obiter Dicta, 1884. revealed him as an accomplished essayist with a delightful style, and was followed by a Life of Charlotte Brontë, 1885; the second series of Obiter Dicta, 1887: Res Judicate., 1892; Men, Women, and Books, 1894; William Haclitt, 1902; In the Name of the Bodleian, 1905; and other books on subjects connected with bellesentered parliament in 1906 as member on subjects connected with belleslettres and law. His first wife died in 1879. His second wife is the daughter of Frederick Locker (Locker-Lampson), the poet.

Birs, a small riv. of Switzerland, in the canton of Berne. Near it was

fought the battle of St. Jacob's against the Fr. in 1444, when 1600 Swiss were annihilated in opposing 30,000 Fr., the Fr. losing 10,000 men. It was also the scene of a victory of the Swiss over the Austrians in the year 1499, after which the Emperor Maximilian I. recognised the independence of Switzerland.

Birs Nimroud, see BABYLON.

Birs Minroue, see Babylon.
Birstal, a manufacturing town in the W. Riding of Yorkshire, England, 7 fm. from Leeds. It has collieries and iron foundries, and manufs. of woollens, worsteds, cotton, and silk. Birth, Concealment of, in Eng. law, by the Offences against the Person tet 1861 is a mischmennum number.

mother, to conceal or attempt to conceal the birth of a child by any secret disposition of its body, whether the child died before, after, or at the time Avail is taken of this of its birth. offence as an alternative charge in cases of persons charged with murder or manslaughter of infants, owing to

of proving that the legal sense. In Scots law. o a maximum imprisonment

if she conceals her pregnancy during the whole period, does not call for, nor has assistance at the birth, and subsequently the child is found dead or is missing. Till 1803 such concealment was considered presumptive of murder and punished with death.

Birth, Registration of, see REGIS-

TRATION.

Birth-palsy, Infantile Diplegia, or Little's Disease, a parulytic affection caused by injury at birth, through protracted labour, the use of instru-ments, or other causes. The condition is often not observed during the early years of childhood, but manifests itself when the child might ordinarily be expected to support itself on its own limbs.

Bisaccia, a tn. of Italy, anciently called Ranula. It is about 60 m. from Naples, is a bishop's see, and has a pop. of about 6000.

Bisacquino, a tn. of Sicily situated about 27 m. S. of Palermo. It has a pop. of nearly 9000, and does an extensive trade in oil and grain.

Bisalnagar, a tn. in Baroda, in the possessions of the Gaekwar. It is a fairly important manufacturing town with a pop. of about 20,000. It manufs, cotton cloths.
Bisalpur, a tn. of India, situated in the N.W. Provinces, about 25 m.

S.E. from Bareilly.

Bisbee, a tn. of Arizona, U.S.A., in Cochise co., about 45 m. S.E. from Tombstone. There are the works of Tombstone. There are the works of the New York Copper Queen Consolidated Mining Co.

Biscay, see VIZCAYA.

Biscay, Bay of (Fr., Golfe de Gas-come; Spanish, Golfo de Viscaya), an inlet of the Atlantic Ocean; it sweeps in practically a straight line along the m pracucary a straight line along the northern coast of Spain to the foot of the Pyrenees. On the W. and N. it is bounded by the coast of France, its most northerly point being the Is. of Ushant, and its most southerly point Cape Ortegal. By the Roms, the bay was called the Sinus Acuitanian arths Sinus Carles Lines. Aquitanicus, or the Sinus Cantabricus. It forms a fairly regular curve, but Act, 1861, is a misdemeanour punishable by a maximum penalty of of France, the chief being the estuaries two years' imprisonment with hard of the Loire and the Garonne. Its

prevalence of westerly gales which make navigation very precarious. Its English name is a corruption of the Spanish Viscaya.

Bisceglio, a scaport tn. of the Adriatic. Its pop. is over 21,000. It

a Ger, chemist and geologist, born at is a rapidly-increasing industry. Wird, near Nuremberg. In 1822 he Biscuit is the name given to show the professional state of the state became professor of chemistry at Bonn University, and here he re-mained until his death. He wrote a number of treatises on chemistry, botany, and geology, and during his life-time made a number of interesting and useful experiments on in-flammable gases in coal mines. His most important work was a Manual of Chemical and Physical Geology.

Bischoff, Mount, a tn. in Tas-mania. situated 60 m. from Launceston. It is a mining dist., being specially noted for the rich yield of tin ore, which was discovered in 1872. In the short space of two years (1884-86) there was an output of more than

20,000 tons.

(1807-82), a German physiologist and Pottery anatomist, was born at Hanover. He Bishari was educated at Bonn and Heidelberg. In 1843 he became professor of anatomy and physiology at the university of Heidelberg, and in the following year he accepted a similar chainst Gircen Yanger of the professor of the state of chair at Giessen. In 1878, after having been at Munich for over twenty years, he retired, and died in that town. He religion. wrote many valuable treatises and papers on biology and embryology.

Bischofswerda, a tn. in Saxony, 20 m. from Dresden, with manufs. of

linens and woollens.

Bischweiler, a tn. of Lower Alsace, in the prov. of Alsace-Lorraine, situated on the R. Moder. It was A celebrated fair was also held here. It has manufs, of cartridges, carpets,

width is roughly about 400 m., and Common sea Bs., or ship bread, are its length is approximately the same. | totally unfermented, whilst captain's Its southern shore, i.e. the northern Bs. are partly fermented. All the coast of Spain, is hold and rocky, and other forms of B. are fermented. differs very essentially from that of Various machines have been invented the Fr. coast, which is in most places for B.-making, and in a modern faclow and sandy. The bay is noted for tory the Bs. are never touched by the diversity of its currents and for hand. The various ingredients for the storms so frequently encountered hard Bs. are kneaded into a stiff there; its danger is increased by the dough by a machine, 'braked' or rolled out between rollers, then cut up into squares by a machine which has a pair of rollers to compress it to the required thickness. The dough is then carried along on a web which takes it under a block, whose cutters cut into has many fine buildings, more and a travel slowly through a cathedral, many churches, and a travel slowly through travel slowly through the cathedral, many churches, and a travel slowly through travels, but stands in a good wine frame; they are then finished and are packed in tins. There are innumerable varieties of Bs., and B.-making

Biscuit is the name given to stone. ware, earthenware, porcelain, etc., when they have undergone the first firing, and before they are finished. When in a B. state the articles are porous, and ready to take any glaze or other decoration. In the case of ordinary drain-pipes and sanitary ware the articles are glazed without being removed from the kiln or oven; common salt is thrown on the fires when the highest temp. is reached, and a glaze is thus formed. a design is desired to be put on, the design is printed on transfer paper and applied to the biscuit-ware whilst wet. In the case of porcelain, the decoration is not put on till after the articles ,000 tons.

Bischoff, Theodor Ludwig Wilhelm fuller information see the article on

Bisharin, Bishari, or Beja, is the name of a people of E. Africa. They form a stock to which belong many tribes of the region which lies be-tween the Blue Nile and the Abystheir language

that region. Mohammedan

Bishop (Gk. ἐπίσκοπος, A. S. bisceop), an overseer or overlooker. that in the early apostolic church was closely allied with the word elder. The word is used in the N.T. on sovoccasions, but is always used as synonymous with the word elder. There is no distinct difference made formerly an episcopal tn., and had a between these two ranks in the church, castle, which was dismantled in 1706. A celebrated fair was also held here bishops and deacons. Any differences bishops and deacons. Any differences would have been of a distinctly minor and jute-cloth; hop-growing is also character, and even then even minute carried on. Pop. 8000.

Biscuit (Fr., twice-cooked) is a kind of hard, dry bread which has not risen, so made in order to be preserved without deterioration for a long time.

duties as teachers. The significance of the term B. has changed considerably, however, with the medieval and modern ages. Within the Catholic Church the B. is now recognised as the highest order of the hierarchy of the church, with certain special the B. is nominated by the Bs. of the prov. In the Roman Church the prov. In the Roman Church the province is explicit for a conditional content in the content of spiritual functions and with certain rights of oversight over the lower orders of the clergy. By the end of the 2nd century A.D. the claims of the Bs. had been estab. very much on the lines that we find them at the present day, and the theory of the apostolic succession was put forward. By the same time the limitation of the authority of the B. to the diocese had also been put forward and found general acceptation in the church. In the early church this was probably necessary, since the frequent attacks made upon the Christian religion made it a necessity that some definite order and ruling should be given to it. The power and the duties of the B. remained very much the same during the mediæval ages, from the time of their conception during the 3rd century. The Council of Trent laid down that the B. must be a man of approved learning, of at least thirty years of age, and legitimate. The method of election of Bs. in the Roman Church has altered considerably since the period of the early Christian Church. Bs. were originally chosen by the people, the remaining Bs. of the prov. having the right of veto. Gradually this power departed from the people and fell into the hands of the pro-vincial Bs., who were subject to a veto from the metropolitan. Next the power passed into the hands of the cathedral chapter, still subject to the veto of the metropolitan and later of the papacy. Gradually the sole power of confirmation passed into the hands of the pope in the Western Church, and with this right of confirmation there came also the demand for the sole allowance is made for the doctrinal right of nomination. This claim v made by the papacy from the eadays of the 12th century, and in E history we have the instance of P. to ratify

the nomined

or of the k
minsen, put taking one full right
nomination into his nomination into his own hands a placing Stephen Langton in the arch- by a statute of Henry VIII., which episcopal throne of the prov. of Canterbury. At the present time in the Roman Church the pope claims the right to nominate the Bs. in a number of countries, but in most the appointment has to a large extent passed into the hands of the political Spain, Austria, and authorities. France may be taken as instances a congé a't where the nomination of the Bs. rests by a letter nominally in the hands of the head of the crov

nominee is subject to an examination at the hands of the legate nominated by the pope and also by the car-dinalate. But even after satisfactorily undergoing this double examination he is not consecrated until about three months after his confirmation. although during this what can almost be termed probationary period he is allowed to exercise the full rights of a B. of his diocese. By the law of the church a B. is subordinate to the patriarchs and archbishops, but as far as his position in orders goes, he is inferior to none. The pope himself does not claim higher powers in the matter of confirmation, consecration, and the performance of spiritual duties than does the B. He has, in the Roman Church, full and sole authority to confer holy orders, to consecrate, to confirm, to give benediction, and to anoint kings. There are also titular Bs., that is, Bs. who have received the episcopal consecration but have not any definite diocese, and hence are used chiefly to assist other Bs. of the church, and to represent the pope. The Roman B. ranks next to a cardinal, is styled in England the Right Reverend, and receives in conversation the courtesy title of My Lord B. The Catholic Directory for the year 1912 gives the number of archiepiscopal sees as 210, the number of episcopal sees as 829, and the num ber of titular sees as 610, many of which are vacant. The insignia of the Roman B. are the ring, the pectoral cross, the pastoral staff, the vestments, the mitre, and the throne.

Anglican bishops. — When

Bs. nan conests. ver, rch. icen 534.

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was re-enacted during the reign of Queen Elizabeth. The nomination, however, is still nominally in the hands of the cathedral chapter, and in the disestablished Church of Ireland in the hands of a synod of the church. In England, however, the crown is notified of the vacancy, and

declared election the B. can be those of the B. of the Roman Church. declared elected by royal letters The Bs., however, are all chosen from patent under the Great Seal. The the monastic orders, since the secular archbishop of the proy. is then notificerary are compelled to marry and the fied and proceeds to the consecration is of the B. elect. This consecration is of the B. of this church are much usually carried out by the archbishop, the same as those of the Western in person assisted by some or all of the provincial Es. But a bishopric in England is also a barony, and the B. poured upon oranges, the whole being has to pay homage to and take the sweetened and spiced. oath of allegiance to the king in per- drunk either hot or cold. son, according to the old rites of the feudal baronage. In England a cer- mer, acquired a fortune from a wine tain number of seats are allotted to business in London, which enabled the Bs. in the House of Lords. At an earlier period all Bs. sat in the House build an observatory at his residence, of Lords, but since the growth of the South Villa, Regent's Park. His inchurch has led to the appointment of terest in astronomy induced him to a great number of Bs., it has since make a serious study of mathebeen decided that the two archimatics when he was fifty. Besides hishops, together with the Bs. of Lon-securing the services of highly-trained don, Winchester, and Durham, should always sit in the House of Lords, the remaining twenty-five seats being filled by the Bs. in the order of the seniority of their consecration. In addition to the powers which Bs. have of ordination, consecration, and confirmation, they have also a certain iurisdiction over the clergy of their of the kingdom, and are addressed by the title of 'Right Reverend.' They have also the legal style of 'My Lond.' they are allowed to marry, but their wives have no title or precedence. The insignia of the Anglican B. are the rochet and chemere, the episcopal throne, the mitre, the pastoral staff, and the pectoral cross.

Suffragan bishops.—Suffragan Bs. are those appointed by the crown to assist the B. of a diocese, who is prevented from performing his duties properly either by physical infirmities or owing to the extent of the diocese. or owing to the extent of the diocese. In the Eng. Church he is appointed on the recommendation of the B. of the diocese by the crown. In the Reformed or Lutheran Church of the continent the title of B. remained after the Reformation. In many cases the spiritual duties of the B. ceased, and the title was used purely as a secular and political title. In these case-, however, where the title was used in the spiritual sense, the holder of the title did not claim unbroken apostolic succession. The general term used at the present time is that of superintendent. The title also still survived in other churches, such, e.g., as the Moravians.

The Greek: Church.—The spiritual functions of the B. of the Eastern or

by law to elect this nominee, and Orthodox Church are the same as Church.

Bishop, a beverage made of wine

Bishop, George (1785-1861), astronohim to fulfil a long-cherished wish to securing the services of mighty-trained observers, one of whom discovered ten small planets, he acted as secretary (1833-9), treasurer (1840-57), and president (1857 and 1858) of the Astronomical Society.

Bishop, Sir Henry Rowley (1786-1855), Eng. musical composer, was born in London. He received his rain

born in London. He received his prin. training from Francesco Bianchi, diocese, a jurisdiction which is regu-who was at this time settled in lated by the Clerry Discipline Act London. His first composition was and the Public Worship Regulation a piece called Angelina. In 1809 he Act. The Bs. of the Church of Eng-produced his first opera, the Circustand are ranked just above the baron sian Bride, the scenery of which, howeful the kingdom, and are addressed by ever pericked in the great first of the kingdom, and are addressed by ever pericked in the great first opera. ever, perished in the great fire at Drury Lane. In 1810 he was appointed composer to the Covent Garden Theatre. In 1825 he transferred himself from Covent Garden to Drury Lane. He was already one of the directors of the Philharmonic Society which had been founded in 1813. In 1822 his opera Maid Marian and Clari was produced, in which was the famous air Home Sweet Home. In 1830 he was appointed musical director at Vauxhall. In 1841 he became a professor at Edinburgh University; in 1842 he was knighted; and in 1848 he succeeded to the chair of music at Oxford. He died of cancer in April, in very impoverished circumstances. His chief works are: Angeling 1801. chief works are: Angelina, 1804; Chief Works are: Angelina, 1894; Tamleraux Bajazel, 1806; Circassian Bride, 1809; The Maniac, 1×10: The Virgin of the Sun, 1812; The Miller and his Men, 1813; Guy Mannering and the Slove, 1816: Mand Marian and Clari, 1822: The Serenth Day, 1833. Bishop, Isabella (1832-1904), travel-

ler and author, daughter of the Rev. Edward Bird. She began to travel at the age of twenty-two, when she went to Canada for the sake of her health. The Englishroman in America, her first book, consists of letters written during this trip. Among many journcys the most important was one she appeared at the bar of the King's undertook through Corea and Shang-Bench. In spite of the fact that hai, penetrating into the very heart everything had been done to secure a hai, penetrating into the very heart of China. She wrote many books descriptive of her travels: Unbeaten Tracks in Japan, Journeys in Persia and Kurdistan, Among the Tibetans, Korca and her Neighbours, Yangise Valley and Beyond, Chinese Pictures. Miss Bird married in 1881 Dr. John B., an Edinburgh physician. In 1901 she rode 1000 m. in Morocco and the Atlas Mts. I. B. was the first lady fellow of the Royal Geographical Society.

Bishop, William, D.D. (1554-1624), Bishop of Chalcedon, studied theology at Rheims and Rome. In 1583, having been ordained priest, he was sent to the Eng. mission, but unfor-tunately for his cause, Walsingham kept him some months in Marshalsea Later he was again imprisoned, this time at the English College, Rome, as leader of 'a factious party.' Difficulties arising out of the new oath of allegiance required by James I., led to his third incarceration. In 1622 B. was appointed vicarapostolic with ordinary jurisdiction over the Catholics of Great Britain, but died before he could achieve anything in his new capacity.

Bishop Auckland, a tn. in the parl. div. of that name in the co. of Durham. It is situated about 10 m. S.W. of the city of Durham. Its area is about 651 acres, and its pop. 13,839 (1911), showing an increase of 1870 on the last census. At the N.E. end of the town stands the bishop's palace, but to the dust haze or tiny dust in the particles ejected from the volcano. Beck in the time of Edward I. has in addition a number of other fine buildings, amongst which may be mentioned the parish church and the tn. hall. It is an important centre of the North Eastern Railway, and its pop. is chiefly employed in the mills and collieries which surround the tn. Bishopric, see BISHOP.

Bishops, the Seven, the bishops who, called together by Sancroft the primate, signed at Lambeth à protest against the fresh Declaration of Indulgence issued by James II. in 1687. This declaration, proclaiming universal liberty of conscience, was

sign, that is popish

Commissioners were ordered to deprive the bishops of their sees, but this they shrank from doing through for of the people at large, when the state of the opposed to the l seven bishops wer Tower on a charg they having denounced the On June tion as illegal.

committal, the 'packed' jury, over-awed by public opinion, passed a verdict of 'not guilty.'

Bishop's Castle, a market town of Shropshire, situated some 20 m. S.W. of Shrewsbury and about 10 m. N.W. of Craven Arms, to which it is connected by a branch railway. Formerly an important town of the marches of Wales, it returned two members to parliament until the passing of the Reform Act of 1832. It is now included in the southern parliamentary division of Shropshire. It has lost its former importance, and the castle of the bishops of Hereford, from which it originally derived its name, has fallen into ruins. Area, 1867 ac. Pop. (1911) 1409, an increase on the last census of 31.

Bishop's Ring, name given to a peculiar tinge in the heavens, a corona or halo near the sun, called after its first observer, Bishop, who noticed it at Honolulu in the autumn of 1883, after the great volcanic cruptions at Krakatoa (Malay Archi-pelago). Its colour is bluish-white in the centre, shading off to reddish-brown. The diameter of the inner part was about 21°, of the outer 45°. The ring was oval in shape, the phenomenon, associated with the

by gravitation, leaving the rest so nearly of a size as to be able to produce coloured diffraction. Kiessling has produced similar rings and coloured suns by means of certain processes. The B. R. was most intens ing of 1884. disappearther The same ing phenomena were visible again, how-ever, after Mt. Pelée's cruption in Martinique (W. Indies), 1902-3. See Symons, Eruption of Krakatoa and

Subsequent Phonomena, 1888. Bishop Stortford, a market tn. in Hertfordshire, about 30 m. N.E. of London. The area of the urban dist. Longon. The area of the urban dist. was in 1911, 3371 acres, and the pop. 8723, showing an increase in the decennial period of 1407. In the late Saxon and Early Norman days it was the property of the Bishop of London: "I ruins of the so-called Bishop's the son are still to be seen. It has an school (Elizabethan) school (Elizabethan).

· School, and many other stablishments are found liefly employed in brewhor-e and cattle foirs.

norse and cathe lairs.

Bishops Waltham, a th. of Hampshire, about 10 m. S.S.E. of Winchester. From the beginning of its listory it has been the possession of the see of Winchester, and its easile built by Henry de Blois was completely ruined during the Civil Wars. It is in the dist, of Droxford, and has an area of 1122 acres, and a pop. of

4570 (1911). Bishop Wearmouth, a parish in the

district of that town.

Bishopweed, a popular name of Agopodium Podagraria, is a species of Umbelliferæ common to Britain. It is also called gout-weed, goat-weed, and herb Gerard.

Biskra, the name of a tn. of Algiers about 150 m. S.W. of Con-tantine. and in the arron, of that name. It lies in the Sahara about 360 ft. above the level of the sea, and is on the bank of the Wad B. It is a well-know Fr. winter resort, and is protected by the Fort St. Germain, which is capable 600 yds. of defending the whole pop., and is, practically unassailable. Its chimate situated 37 m. to the N. of Magdein the winter months is delightful, burz: pop. 2200.

in the winter months is delightful, and can hardly be matched anywhere. The pop, of the town is about 4000. Biskupitz, Prussian ta, in the prov. It is situated on the L b, of the Missor Silesia and the gov. of Oppeln. Cool-mining is the chief industry. Bisley, a par, in the co. of Surrey, England, in the Chertsey parliamentary division, 7 m. N.N.W. of Guildford, and 2 m. N. by W. of Brook-vood Station. The pop, of the par, is less than 1000, and E. is chiefly remarkable for the fact that since 1890 New Guinea. Their former name was the National Rifle Association have held their annual meeting, in July, discovered by Dampier in 1899, but lasting for a fortnight, at the ranges on B. Common. The competitions agreement with Germany, by which were formerly held at Wimbledon, they were assigned to the Ger. sphere ranges to be longer and safer, and B. was therefore chosen. The competitions now are chiefly for volunteers, but there are some open for members of the regular forces, the militia, 'he yeomanry, colonials, and civilian members of the National Rifle Association. The most important of the compe-titions are as follows: The King's Prize, formerly the Queen's Prize, which was founded by Queen Victoria in 1860, is of the value of £259, and carries with it the gold medal of the National Rifle As-ociation. The competitors, who must be past or present volunteers, shoot seven shots at 200, 500, and 600 yes; the best 300 are thus selected, who shoot 10 times at 600 and 800 yds.; the best 100 of these shoot 10 times at 500, 900, and

ing and malting, and holds important 1000 yds. Other competitions open to volunteers only are the St. George's Prize, at which the competitors shoot 7 times at 500 and 600 vds., and 10 times at 500 vds.; and the Prince of Wales' Prize, for 10 shots at 200 and 600 yds. Then there are the prizes given by various new-papers: by the Daily Graphic, open to all corners, for 7 shots at 200 yds by the Graphic, open to all, for 7 shots at 500 yds.; and by the Daily Telegraph, for volunteers only, for 7 -hot- at 600 vd-. There co. of Durham, in reality a suburb of ore various prizes for teams of rifesunderland, forming the southern men—the kieko Challeng shield, for the best four 'eights' of the different nationalities of the British Isles: for this 15 shots at 200, 900, and 1000 The Ashburton yds. are fired. Challenge Shield is for the be-t eight of public school volunteer corps; 7 shots at 200 and 500 yds, are fired. For the Humphry Challenge Cup, open to university teams, 15 shots at 800, 900, and 1000 yds. Teams from the mother country and the various colonies compete for the Kolapore Cup, firing 7 shots at 200, 500, and

Bismarck, a tn. of Prossian Saxony,

held their annual meeting, in July, discovered by Dampier in 1699, but in 1555 Great Britain came to an but the introduction of the small-bore of influence, and their name was then rifle rendered it necessary for the changed. The print islands of the archapelago are New Pomerania, formerly called New Britain, and New Mecklenburg, formerly called New Ireland, which are separated from each other by St. George's Channel, in which the currents are of great violence and subject to no fixed rules: Dampier Strait separates New Pomerania from New Guinea, and another important is., New Hanover. lies to the W. of the north-western extremity of New Mecklenburg, from which a tortuous system of reefseparates it. All the i-lands of the archipelago are included in the Ger. protectorate of New Guinea co., and the prin. Ger. stations are situated as follows: at Herbertsohe in the N.E. of New Pomerania, the seat of the gov. both of B. A. and the Ger. portion of the Solomon Islands; on Blanche that he regarded revolutionary move-

these are threaded on long strips of split cane readed on long strips of split cane mith various rm the money used by the natives.

Bismarck, Henri Ferdinand Hereught years' diplomatic service, howform the money used by the natives.

bert, Count of (1849-1904), eldest son embassies in turn of Rome, London, charged with important negotiations, including a mission to London in 1881. In 1885 he was made Secretary Count of State for Foreign Affairs. Bismarck married Countess Margarete Hôyos.

Bismarck, Otto Eduard Leopold Von, Prince, Duke of Lauenburg (1815-98). the greatest of Ger. statesmen. was born on April 1, being the son of a gentleman of good family and of

He was educated at a private school in Berlin, and later at the Gymnasium of the Grey Friars in the same town. On leaving school he attended the university of Göttingen, and after spending a year there he returned to Berlin and passed the examinations necessary for his entrance upon a career in the diplomatic service. He did not, however, enter this at once, but spent the early years of his youth in travelling, and in residence on his home estates. He early took a great interest in public affairs, and his wide reading and extensive travelling at one time seemed likely to allow of his having rather wide and liberal views, but his religious convictions and the influence of religious revival led him to adopt the opinions in favour of monarchical government for which he became so famous. In 1847 he Puttkamer. married Johanna von During the five years which followed his marriage he took an active part in the politics of Prussia, being bitterly opposed to any scheme which seemed | Prussia to go. Then came the rising of either to be revolutionary or to savour | the Poles, and Bismarck carned the of restriction of the monarchical principles or to reduce the power of the Christian monarch. He distinguished himself by the originality and zest time of Schleswig-Holstein, when with which he defended his position, and he showed by his bitter opposition to various proposed constitutions

of the Solomon Islands; on Blanche Bay, in the N. of the Gazelle Peninsula; and on a small is. in the bay called Matupi. The islands are not unhealthy, and cotton plantations have been started by the Gers. with native labourers. The inhab. of the islands are skilled in agriculture, but practise cannibalism. At present coconuts and cover data are the c carcer. He was frequently employed completed sev.

ever, was to open his eyes to the true of Prince Bismarck. He served in the position of Austria with regard to army, 1870-71, then entered upon a diplomatic career, becoming secretary regarded alliance with Austria as to his father. He was secretary to the Austria would support the Conserva-St. Petersburg, and was several times tive principles of Christian monarchy. But he learnt now that Austria desired only the abasement of Prussia, and henceforth his policy changed. and he saw that the greatness of Prussia could come only after the downfall of Austria. In 1858 he went to Petersburg as the Ger. ambas., and for some years remained there with little influence over the home gov., which was Liberal, and distrusted him. But gradually he began to become more powerful, the details of events at home were sent him, he was frequently consulted, and at last was made minister in Paris. Here he renewed his previous good understanding with Napoleon, and finally from here he was recalled in Sept. 1862. and appointed by the king Minister President and Foreign Minister. His appointment as Minister President was intensely unpopular. His duty was to carry on the gov. of the country in the face of the opposition of the Lower House. It seemed impossible that he should succeed, and that he could do anything but resign at an early date. But it was necessary to the king that he should succeed and allow time for the reorganisation of the army, and in the face of violent and often personal opposition, in spite of lack of budgets, he was ablo to perform his work for the king. He soon began to make his power felt. The policy of Prussia had long lacked resolution, now it was to be noticed for its absolute resoluteness. meeting of Ger. princes at Frankfurt Bismarck refused to allow the King of gratitude of Russia and the contempt of Europe by offering Ger. aid in its Finally came the quessuppression.

Bismarck

Bismuth

prepared the way for the ultimate was dismissed by the annexation of the prov. by Prussia. William II. A reconciliation took The next step was war with Austria, place in 1893, and his 80th birthday In this war B. entered in the most in 1895 was regarded as a national calculated way. He saw that the event. He died on July 31. See destruction of Austrian power was Bismarck's Edanken und Erinnerdestruction of Austrian power was destruction of Austrian power was destruction of Prussian greatness, the waited until everything was in his favour, until he had gained the support of France and Italy, and then in 1866 he struck and was successful. The war of 1866 is in a greater degree than the war of 1870 the turning-point in the greatness of modern to the decided once and for all that Prussia should be the dominant power of Germany, and the work of that Ger, unity should be the work of Bismarck. 1891-2; Blum's Bismarck und seine Zeit, 1891-5; and for dominant power of Germany, and the work of Bismarck. Literatur, 1896.

Prussia. He was moderate in his Prussia. He was moderate in his settlement, and required no territory from Austria, but made a confederation of North Germany, and did not 0° 33′ E., 130 m. from the coast. It attempt the unity of the whole of is the cap. of the mountainous dist. Germany in order not to alarm of the same name which lies to the France. The greatness of Prussia was S.E. of Lake Tanganyika, and includes not to be disturbed by lack of calculation-when the time was ripe unity would come by the sword of Prussia, but there were to be no chances of The Austrian war created a failure. new position for B., he now became sole responsible minister, his title being changed to Chancellor in 1871. He now began to reconcile his erst-while opponents, and from being re-garded as the opponent of National Unity of Germany, he now became its recognised leader. The struggle with Austria led almost of a necessity to war with France. At one period armed intervention by the Fr. seemed inevitable, but this was avoided. France now demanded territory on the left of the Rhine, and being re-fused proposed, as a return for acquiescence in the unity of Germany, inclined iron plate, when the pure B. the support of the Prussians in the melts and runs down into the reannexation of Luxembourg and ceptacles provided. B. is a hard annexation of Luxembourg and ceptacles provided. B. is a hard Belgium. War was inevitable, and as in the case of Austria, Prussia bided colour; its specific gravity is 9.75, it her time. During the years which followed there were many causes of quarrel, which culminated in the opposition of France to the candidature of a prince of Hohenzollern to the Symples throng and the publication challenges are recovered. Spanish throne and the publication chloring group. B. forms many useful of the Ems telegram, which made war alloys with low melting-points under inevitable. During the Franco-the general name of 'tusible metal.' Prussian war he accompanied the These alloys are used in making type

Emperor

Diemoralchura station in the Ger. E. Africa, 2' N. and long.

Lake Rikwa.

Bismuth, a metallic element. was probably known in the middle ages under the name marcasite, but was often confused with zine and antimony. It is a comparatively rare metal, usually occurring in nature in association with ores of silver and cobalt. The greater part of the world's supply comes from Schneeberg in Saxony, Joachimsthal in Bohemia, Cornwall, Bolivia, and Peru. The ore is roasted and then smelted with iron, carbon, and slag; two layers are thus obtained, the lower one containing nearly all the B., which may be removed by tapping the lower end of the cylindrical retort in which the process is carried out. The crude B. is then purified by heating it on an inclined iron plate, when the pure B. Prussian war he accompanied the These alloys are used in making type army and conducted nexotiations with the French. and completed the arrangements for the entrance of the good cast; for soldering and for the southern states into the Federation. His work after 1871 was completely the cocupied with the domestic policy of Germany. He had a long and strenuous quarrel with the Roman Catholic Church, and also presided over the Congress of Berlin of 1878. The death of the Emperor William in 1889 was a grave blow to him, and in 1890 he

ever, is the nitrate together with the can withstand the attack of any basic nitrates formed by diluting the animal but the powerful grizzly bear acid solution with water: magistery It is gradually becoming extinct, but It is gradually becoming extinct, but in a few places, such as Yellowstone Park, herds are carefully preserved. Sec J. A. Allen's American Bisons, 1876. Bissagos Islands, a group of islands

off the western coast of Africa, consisting of about sixteen large and a great number of small islands. They are situated between lat. 10° 2′ and 11° 55′ N., and long. 15° and 17° W. Most of the islands are well wooded and well populated, but are extremely unhealthy for Europeans. belong to Portugal.

Bisset

Bissão, a scaport in Portuguese W. Africa, situated E. of the is. of the same name, in the mouth of the Rio

Geba: pop. 2000. Bisschop, Christoffle (Christoph), Dutchgenre-painter, born at Leeuwarden, 1828. He was a pupil of Schmidt and of Van Hone, also later of Conte and Gleyre in Paris. His wife is also a painter in the same style, and they now live at the Hague. Among his works are 'Tronwdag' (Wedding-Day), which won him a reputation, 1871; 'Rembrandt going to Lecture on Anatomy.' 1867, 'Burrowuster's on Anatomy, Daughter:

osity Shop;

tening-Day it in Friesland; 'The Prisoner's Song;' 'The Critical Moment;' 'Crown Jewels: 'The Lord has given, the Lord has taken away,'1880; 'Visit to Grandmamma,'1883. See Müller, 52.

Bissell, George Edwin (b. 1839), American sculptor, son of a marble-cutter in Connecticut, Served during Civil War (1862-65). In 1875 came to study in France and Italy. his chief works are a national monu-ment at Waterbury, Connecticut, a statue of Abraham Lincoln at Edin-burgh, a relievo of 'Burns and Highland Mary 'at Ayr, and emblemati-cal groups at New York, Buffalo, St.

cal groups as Louis, and elsewhere.
Louis, and elsewhere.
Harman Wilhelm Bissen, Herman Wilhelm (1798-1868), a Danish sculptor, born in Sicswick, and educated under Thorwaldsen at Rome, who on his death left instructions in his will that B. should finish his uncompleted works. B. was in 1850 appointed president of the Academy of Fine Arts at Copenhagen. Academy of the Arisat Copenhagen, Amongst his chief works are: 'Cupid sharpening his Arrow,' 'Valkyrie,' an 'Apollo,' and a 'Venus.' One of his most famous works, 'Orestes,' per-ished in the fire at Copenhagen, 1881.

Bisset, Charles (1717-91), physician and military engineer, was appointed second surgeon at the military hos-pital, Jamaica, in 1740. After his-years' travel in the West Indies and

of B., flake white, and Spanish white are some of the salts thus produced. The basic carbonate, prepared by treating B. nitrate with ammonium carbonate, is much used in medicine for easing painful gastric affections, such as dyspepsia, diarrhoa, ulcers, and cancer. The action is that of a direct sedative, the salts coming into contact with the nerve endings of the mucous membrane. The insoluble salts are opaque to X-rays, and abnormalities in the structure of the alimentary canal can be demonstrated on a fluorescent screen by following the course of a large dose taken as an emulsion.

Bison, the name of a ruminant allied to the ox in the family Bovidæ, and comprises only two species, the European and the American Bs. The former is often confused with the aurochs, and is now to be found only occasionally in Europe, as in the forest of Bialowicza in Lithuania. It



BISON

is more than 6ft. high at the shoulders, and is a most powerful and formidable animal, able to level with a thrust a tree 6 in. in diameter. It is massive, has thick, elongated withers, and its head is covered with a mane, often a foot in length, which is thickest in winter and inconspicuous females; the eyes are small savage. It has a strong sense of smell savage only from the and can be approached only from the In habit it is herbivorous and fond of the barks of trees; it is gregarious, but domestic cattle rouse its fury, and it attacks them fiercely; attempts to mix the breed have failed. A short deep grunt is its method of articulation, and can be heard at a considerable distance. The American B. differs little from B. bonasus, the European B., but they are smaller, shaggier, and flercer, and America, he came home and accepted an ensigney in the 42nd Highlanders. about 25 m. S.E. from Saargemünd. He crossed with his regiment to the lt is strongly fortified, the citadel Low Countries, and was attached to having been hewn out of solid rock, the engineers' brigade because of his lt was twice unsuccessfully besieged, excellent reports on the siege of in 1815 by the Prussians, and 1870 by Bergen-op-Zoom. Finally, he again the Gers. It was taken by the Fr. in practised medicine, this time at Skel-1766, but regained in 1871. Pop. 3000, ton, Yorkshire. His curious versal Bithur, a tn. in the Cawnpore dist. tility is shown in his publications, of the United Provs. of India. It which include Theory and Construct is situated a little over 10 referen

Bissextile, or Bissextus Dies, the method, the insertion was made after in. in July 1857, when the palaces of the 24th of the month. The 24th the Nana were destroyed. would be, in the Roman calendar, the

a Fr. writer of vaudevilles, b. in 1848. He began his career as a clerk in the dept. of the Instruction Publique, but gave up this post in order to devote himself entirely to writing for the stage. His clever wit, gaiety, and power of keen observation quickly himself the public stage. brought him the favour of the public. Among his most successful earlier vaudevilles are: Un Lycce de Jeunes Filles, Le Député de Bombiquex, Une Maison Délicate, and Le Roi Koko. Since 1899 the following have been produced at different Paris theatres: Docleur (written in collaboration with G. Thurner), Le Bon Juge, Les Apaches, Les Trois Anabaptistes (in collaboration with J. Berr de Turique), Le Peril Jaune (with Saint-Albin), and La Petite Maison, with music by William Chaumet. A. B. wrote also the libretto for Capitaine Thérèse, a comic opera by Robert Planquette.

Biston, in entomology, is a name given by Dr. Leach to a genus of lepidopterous insects of the family Geometridæ. Three British species of these moths are B. prodromaria, the oak beauty; B. betularius, the pepper moth; B. hirtarius, the brindled

beauty.

Bistre, a warm brown-coloured pigment, which is prepared generally from beechwood soot.

the chief tn. of the circle of B., and is in a beautiful situation. Tanning is is a trade in gum and fruit. practised, and there are spinning. Bitonto, a tn., prov. of Bar

tility is shown in his publications, of the United Provs. of India. It which include Theory and Constructis situated a little over 10 m. from tion of Fortifications, 1751; a treatise the tn. of Cawnpore, and has a pop. on scurvy, 1755; and An Essay on the of about 7000. Interest in the tn. is Medical Constitution of Great Britain. due to the fact that it played an important part in the mutiny of 1857. intercalary day inserted by the Julian Nana Sahib made it his headquarters colendar in February every four and from here emanated the recellion, years. According to the Roman Hayelock captured and stormed the

Bithynia, an ancient div. of Asia 6th of the Kalends of March, and Minor, separated from Europe by the being the Katerius of March, and Minor, separated from Entropy the hence the inserted day was the second Propontis and the Bosphorus, and 6th or 'bissextus.' The day is now bounded on the N. by the Brack Sea. inserted for convenience at the end on the E. it adjoined Faphlagonia, of the month.

On the W. and S.W. Mysia, and on Bisson, Alexandre Charles Auguste, the S. Phrygia. It is very mountainous and its mts. are all well wooded, but near the sea coast there are many very fertile valleys. Its natural sources of wealth are still in a very undeveloped state, although its forests provide the material for an excellent and flourishing industry, and coal is also known to exist in the country. The Lithynians are supposed to be of Thracian origin. They became part Lydian monarchy under the King Crossus, and later were conquered by the Persians (546 B.C.). It became, however, ultimately one of the most flourishing of the smaller kingdoms of Asia Minor, its cap. Nicomedia being founded by the first of its native kings nearly 300 years n.c. The last native king. Nicomedea III made the Pompars his keing 74 III., made the Romans his heir in 74 B.C. It became a Rom. prov., and for some time under Trajan was governed by the younger Pliny. In 1298 the Turks under Osman invaded the country, and it became in the course of time a Turkish possession. sole flourishing towns at the present time are Prusa (Brusa), (Nicomedia), and Scutari. time

Bitlis, a town in vilayet of Bitlis, Turkey in Asia, situated on the Bitlischai, a trib. of the Tigris, in a high valley, 4700 ft., amid the wild mt. scenery W. of Lake Van. 10p. 35,000 (maionity K. 1200) Bistritz (Hungarian Bestereze). a majority Kurds, with 12,000 Arwn of Bohemia, Austria-Hungary, menians. An old Arab castle is said tuated in 47° 7′ N. lat. and 24° 30′ to occupy the site of a fortress built town of Bohemia, Austria-Hungary, menians. An old Arab castle is said situated in 47° 7′ N. lat. and 24° 30′ to occupy the site of a fortress built E. long., on a riv. of the same name, by Alexander the Great. The prin. which is a trib. of the Szamos. It is industry is the weaving of red-cloth. Tobacco is largely grown, and there

practised, and there are spinning- Bitonto, a tn., prov. of Bari, Apulla, mills. Pop. 10,000.

Bitche, or Bitsch, a town in Geroft the tn. of Bari. The old mediæval many, situated in Lorraine, and walls still remain, and there is a fine

early 16th century palace, but its branching off S., where the main chief glory is the unrestored and un-range turns E. through Montana. spoiled cathedral, a fine example of Italian Romanesque architecture.

Bitter Apple, Cucumis (or Cilruls) Colocynthis, is the fruit of a species of Cucurbitacem, and is allied to the cucumber. It is a round, yellow fruit, and the pulp is used as a purgative under the name of colocynth Other names for it are bitter (q.v.).cucumber, colocynth gourd. coloquintida.

Bitterfeld a tu. and commune in the prov. of Saxony, Prussia, on the 1. b. of the Mulde, 20 m. from Leipzig. There are lignite mines, and iron foundries. Its manufs. are earthen-

ware, drain-pipes, roofing felt, etc.
Bitter Lakes, known as the Great
and the Small, are lakes near Suez,
and they form part of the Suez Canal. These lakes were almost dry when the

canal was cut.

Bittern, a large wading bird, buff-coloured, speckled with black and brown, living in swampy tawny ground. long bill; its habit and bill in a vertical

it among the reeds. day, hunting its food



BITTERN

and fish—towards nightfall. Its loud booming call marks the breeding season. The European B. (Bolaurus Stellaris) is rarely seen now in Great Britain, but it was once common, especially in the Fens. The genus Bolourus belongs to the family The genus Ardeidæ, which includes the herons.

Bitter Root Mountains, a long range of mts., with a maximum alt. of be-tween 9000 and 10,000 ft., forming part of the boundary between Idaho separately, as also is petroleum, which and Montana, U.S.A. It is an outlying part of the Rocky Mt. system, maltha, or viscid B., and that again

Bitters, beverages containing substances imparting a bitter taste, and usually including about 40 per cent. of alcohol. The bitter principle is generally derived from orange-rind. quinine, quassia, angostura, gentian, or hops, and is imparted to the liquid by simple maceration and filtration, or, in the case of some household remedies, infusion and decantation, The action of most B. is to stimulate the sense of taste and the secretion of the gastric juices; they are therefore mild tonics and appetisers. Any other remedial quality possessed depends upon the nature of the drug included. apart from its bitter taste. Many of them are used as digestives before a meal, such as the beverages known as orange, angostura, and peach B. Generally speaking, their occasional use in small quantities is beneficial or at least harmless, but their continual use has an irritating effect upon the stomach, apart from the alcohol they It has a short neck and usually contain. Many bitter infue have line

been associated with preparations

of real medicinal value.

Bitterspar, a general name for the crystallised varieties of dolomite, or magnesian limestone. It possesses various degrees of transparency, and has a somewhat pearly justre, whence it has been called pearlspar.

Bittersweet, the popular name of the 'wooddulcamara.

lation of di which is fir

It is a common frequenter of hedges and thickets, with a slender climbing stem, pointed leaves with two pro-jections at the base; the flowers, resembling those of the potato, are lilac-coloured with yellow centres. The searlet fruit, growing in clusters. are poisonous in large quantities.

Bitterwood, a name given to the product of many plants, but especially to that of Picrana excelsa, a species of tropical Simarubaccie. In this case it is also known as Jamaica quassia, which is a good tonic. Xylopia sericea, a species of Anonacce, is a tree with bitter wood in Brazil, and X. glabra of the W. Indies.

Bitumen, a term applied generally to minerals of vegetable origin, consisting of complex hydrocarbons. They comprise many species, ranging from natural gas, through petroleumand asphaltes, to the softer varieties of coal. Natural gas is dealt with into asphalte (g.v.), or solid B. Of the dorsal middle line an elastic memviscid Bs., the most important is brane, called the hinge-ligament, which Elaterite, or mineral caoutehoue. It is a dark brown or black substance, of this molluse is itself bilaterally wanted and is destrict the inter-Plauzite, a dark-brown coal-like subor Gilsonite, both found in the Uintah resembling asphalte, which is obtained in Nova Scotia.

Bituriges

Bituriges, a Celtic people of anct. rul. They were divided into the Gaul. B. Cubi, whose cap. was Avaricium (Bourges), and the B. Vivisci, cap. Burdigala (Bordeaux). The former joined in the rebellion of Vercingetorix (52 B.C.), their cap, was taken by the Roms., and its people massacred. Bitzius, Albrecht (1797-1859), Swiss

novelist, usually known by his pseudonym, Jeremias Gotthelf, the name of the prin. character in his first novel Bauernspiegel. He was the son of a pastor, and became his father's assistant in 1822, and from 1831 till his death in 1854 was pastor at Lützel-flüh, in the Upper Emmenthal, there he wrote his novels of peasant life and character, true pictures drawn from real life, told in the Bernese dialect. and with simple moral teaching. They include Bauernspiegel, 1837; Leiden intitude Baueruspieger, 1897, Lettera, u. Treaden eines Schulmeisters, 1838; Uli der Knecht (The Serf), 1841, and its sequel, Uli der Pächter (The Tenant), 1849; Anne Bäbi Jowager, 1843; Käthi die Grossmutter, 1847; Die Käserei in der Vehfrende, 1856; Barlets, 1902.

Bivalves, Pelecypoda or Lamelli-branchiata, form one of the largest groups of molluses, and are characterised by their two bilaterally symmetrical, limy plates or valves to the

usually soft, and is elastic like india-symmetrical and is compressed; the rubber. It is found at Castleton in head is extremely rudimentary; the Derbyshire in compact masses along foor is usually present, when it is perpyshire in compart masses along 1007 is usually present, when it is with lead ore and calcite. A mineral ploughshare-shaped, may contain tar also occurs in Derhyshire and near some of the viscera, and has often a Dingwall in Ross-shire. A substance byssus gland which serves in the with some similarities to elaterite is attachment of the animal. The nerfound in the Settling Stones lead your system consists of three pairs of mine in Northumherland; this occurs ganglia; the digestive system comin the form of drops incrusting the mences with a well-ciliated month walls of a vein of lead over it is hard which catches small particles of feed walls of a vein of lead ore. It is hard : which catches small particles of food and brittle, and does not melt under drifting in the water, there are no 200° C. Other Bs. are Berengelite, a jaws or tongue, and a short esophagus dark brown resinous substance found leads to the stomach; respiration is in Arica, Peru: Bielzite, a brittle effected by means of two ctenidia, black solid found in Transylvania; which are developed right and left of Piauzite, a dark-brown coal-like sub- the clongated body. The heart constance obtained amongst the brown sists of a ventricle and two auricles, coal at Piauze in Carniola; Wurtzi- and the reproductive organs occur in lite, a hard black solid; and Uintahite, the foot, the sexes being usually distinct. B. are found all over the world Valley, near Fort Duchesne, Utah; and more than 5000 species are known and Albertite, a jet-black substance, to exist. They live enjoyin the sea, where they are found at all depths, but some inhabit fresh water; muddy and sandy shores are those which they prefer. Nearly all feed on vegetable matter, but the Septivegetable matter, but the Septi-branchia, a wholly marine order, are carnivorous. Many remain attached to one spot during life, others can crawl slowly, while others again swim by opening and shutting the valves of their shell. Some, e.g. Toredo, are boring animals, and have a damaging effect on the wood of ships. They are of use to man in various ways: some are edible, e.g. mussels, cockles. oysters; savages use the shells in place of coins; pearls are obtained from oysters, and mother-of-pearl is of value commercially; many B. are used as bait in deep-sea fishing. In the classification of Lamellibranchiata zoologists are divided, but most agree in grouping them into four orders: Protobranchiata, with gill-filaments flattened and not reflected, e.g. Yoldia; Filibranchiata, with long, reflected gill-filaments, united by eiliary junctions, e.g. mussels: Eulamellibranchiata, with branchial filaments united by interfilamen-Schuldenbauers, 1854, itar and interlamelar junctions, both Sce Works, 24 vols., Berlin, 1856-61, vascular, e.g. clams, cockles, fresh-10 vols., Bern, 1898-1900; and Life, water mussels; septibranchiata, with by J. Anmana, 1881, in Sammlung, gills transformed into a muscular Bernischer Biographien, and by septum, e.g. Poromya. septum, e.g. Poromya. Bivouac (from Ger. Beiwache, bei,

by, and wache, watch), a temporary camping of soldiers in the open air. No tents are used, and each soldier remains fully dressed, with his arms close at hand. At first only the guards right and left of the body. The mantle had to B. while the rest of the army secretes a covering over the whole remained in camp, but since the time outer surface, and this forms at the of the French Revolution it has been

customary for forces actually engaged of the Arab tn. and the anct. citadel. or about to be engaged in conflict to B. This enables them to dispense with tents and all encumbrances, and greatly facilitates speedy action. Temporary protections of straw and branches are erected if possible, and the position is chosen so as to afford as much protection from the inclemencies of the weather as can be obtained. There are various plans for Bs., according to the regiment and occasion, but the chief object always is that all should be as ready for action as possible. Since to remain in B. is very trying for the soldiers, it is only resorted to when action is imminent. In hot countries, such as India, it is still found necessary to carry tents. Great care is generally exercised in the selection of ground.

Biwa Lake, or Oits Mitsoo, is an immense lake of Japan, in the is. of Hondo. Tradition has it that the lake was formed by an earthquake in 286 B.C. It is 12 m. broad and 36 m. long. and is famous for its great beauty, especially at its southern extremity. It is 10 m. by water from Kioto. The R. Yodogawa drains it, and the Lake sienne, 1872, was more successful. His Biwa Canal connects it with the Kamogawa Canal. The waters are used for the factories and mills of Kioto.

Bixa Orellana is the single species

of its genus and Bixaceæ: it grows in and the W. Indies.

small tree which bears seeds covered with a soft, sticky, vermilion-coloured rind, which furnishes the arnotto of commerce, used in dyeing confectionery.

Biysk, chief tn. of a dist. in the gov. of Tomsk, Western Siberia. Russia. It is an important centre of trade by the rivs. Ob, Buja, and Katun, near the confluence of which it lies, and by the pass over the Altai Mts. into Mongolia. Pop. 17,206.

an ing ma CO

m. S.E. from Toulon and 60 m. by rail N.N.W. from Tunis. The port The port consists of an outer harbour of 300 ac.

mercial harbour and thence to Lake Bizerta, a deep circular inlet of the sea: at Sidi Abdallah, in the S.W., lie the dry-docks, quayage, and other works necessary to make B. a fully equipped station of the highest importance to Fr. naval strength in the Mediterranean. It is strongly fortified by coast batteries, second only to Shipbuilding Toulon. The modern tn. of B. (Arab. is the chief industry, and it exports Ben-zert), lies N. of the canal, and S. lish, timber, and pitch. Pop. 13,000.

The naval and military tn., Ferryville, is separate. The anct. name of the harbour, always the safest on the coast, was Hippo Zarytus or Diar-rhetus, once a Tyrian, later a Rom., colony. It was taken by the Arabs in the 7th century and by Spain in 1535. Long neglect allowed the fine harbour to decay utterly till the declaration of the Fr. protectorate over Tunis in 1881, and its subsequent rise to im-

portance as a naval station. Bizet (Alexander Cesar Léopold) Georges (1838-75), a Fr. musical com-poser, born near Paris, was the son of a teacher of singing; he studied under Halevy at the Conservatoire, and won the Prix de Rome, 1857. with a cantata, Cloric et Clotilde. His operas, Les Pêcheurs de Perles, pro-duced 1863, La Jolie Fille de Perlie. 1867, and Djamileh, 1872, suffered in popularity from the charge of 'Wagnerism,' reserved at the time with little understanding for all music which appeared to the critics as strange or progressive. His music for Alphonse Daudet's drama, L'arlemasterpiece, Carmen, 1875, written to an adaptation by Meilhac and Halevy of Mérimée's tale of the same name. B. married a daughter of in 1865. He died shortly

ie first production of Carmen. res by Pigot, 1886, and Bel-

laigne, 1591.

Bizzari, Pietro (1530?-84?), Italian historian and poet. His principal historical works are: History of the War in Hungary, 1569, and History of the Cyprian War between the Venetians and Solyman. Both works are in Latin.

Bjela, a town in Russian Poland, situated on the R. Krzna, and in the gov. of Siedlec. It has a considerable

corn trade.

Bjerregaard, Henrik Anker (1792-1842), Norwegian author. Educated for the law and became a chief justice. Among his best known books are Blandede Digininger, 1829-30, and Digitninger, 1848: he is also the author of the Norwegian national anthem, Sönner af Norge, and an operetta, Fjældeeventyret, 1825, which

took a ligh place in Norwerian drama. Björn of Scardsa, or Björn Jonsson (1575-1656), leelandic historian. Author of Annals, written with considerable insight in beautiful language. For his works, see Vigfusson and Powell's Corpus Poeticum Boreale, 1883. --- built town of

of Abo. It is f the R. Kumo

years later moved to the beautiful district of Romsdal, where the poet's childhood was spent. In 1852 he graduated at the university of Christiania, where he took to journalism, chiefly dramatic criticism, but soon embarked on his independent literary embarked on his independent interary career. His series of pastoral novels, some of the most exquisite pictures of peasant life in modern fiction, began with Syanöve Solbakken, 1857, and include Arne, 1858; En Glad Gul (A Happy Boy), 1860; and Fiskerjenden (Fisher Maiden), 1868. In 1807, he was readed in the care of the Henry Handen, 1905. It is 1897 he was made director of the Bergen Theatre, where Ibsen had been stage-poet and had produced some of his earlier plays. B.'s dramatic work began with his national saga plays, the earliest being Mellem Slagene (Between the Battles), pro-duced 1857; and Halle Hulda (Lame Hulda), 1858. In 1860 he was given Hulda), 1858. In 1860 he was given proposal of a new Norwegian language a travelling allowance by the gov., and spent from 1860-63 in Italy and the Continent. Kong Sverre, 1861; 1903; W. Payne, Life, 1910; E. Gosse, the great trilogy, Sigurd Slembe (Sigurd the Bastard), pub. 1862, produced 1865; Sigurd Jorsalfar (the Crusader), not pub. till 1872, complete his heroic and historical dramas. On his return to Norway he became nanager of the theatre at Christiania, and was awarded the 'poet's pension' Ejörnsterna, Magnus Frederik, Count (1779-1847), Swedish diplomat- (Diglergage). His literary reputation ist, was born at Dresden; he joined was now estab. His tragedy, Maria it the army and fought against the Fr. (Diglergage). His literary reputation list, was born at Dresden; he joined was now estab. His tragedy, Maria the army and fought against the Fr. Sluarl i Skolland, 1864, and a comedy at the Battle of Leipzig, and later De Nyajfle (The Newly Married Served in Holstein. In 1814 he signed Couple), 1865, were produced under the treaty uniting Sweden and Norhis management. At this period he the treaty uniting Sweden and Northern himself into politics as a strong threw himself into politics as a strong reformer and radical. From 1868-74 wrote books on Hindu Theogony, he was constantly travelling, not only 1843, and on the British rule in India. In Norway, but on the Continent, He died at Stockholm.

Black, Adam (1784-1874), Scottish his views not only on politics but on in Willisher, horn in Edinburgh: Learnt a time from literature. From 1873-76 he lived abroad, and did not return to Norway till 1877. His third literary period may be dated from now on; it is marked by a complete change, and B. takes his place with Ibsen as one of the pioneers of modern drama with a direct appeal to life as it is actually lived, and with a close insight into the motives of everyday action. These plays were at first unsuccessful, though

Björnson, Björnstjerne (1832-1910), (The King), 1877; Leonarda: Det ny a Norwegian dramatist, novelist, and | System (The New System), 1879; En poet, born in Osterdal, Norway, was | Hanske (The Gauntlet), 1883; and the son of the pastor of Kyikne, who six | Geografi og Kerlighed (Geography Hanske (The Gauntlet), 1883; and Geografi og Kærlighed (Geography and Love), 1885. His symbolic play, Over Evne (Beyond our Powers), was pub. 1883, but not produced till 1899. In the political crisis over the royal rote be current of Construction. veto he supported Sverdrup with his old vehemence, and for a time he lived abroad and wrote the analytical and psychological novels, dealing with heredity and education, Det Flager, etc. (Flags are Flying), 1884; Paa Gud's Veje (In God's Way), 1890. A collection of powerful stories (Nye Fortællinger) was pub. in 1894. His later work includes the plays: Paul Lange, 1898; Laborenus, 1901; At Storhove, 1904; Laglanut, 1904: Naar den ny Vin Blomstrer, 1909. He re-ceived the Nobel prize for literature in 1903. Though an ardent nationalist he adopted a moderate policy during the rupture between Norway and Sweden, and strongly opposed the proposal of a new Norwegian language

Biack, Adam (1784-1874), Scottish publisher, born in Edinburgh; learnt his views not only on politics, but on publisher, born in Edinburgh: learnt literature, art, and religion. His maginthe business of bookselling in London nificent voice and noble presence and Edinburgh, and started for greatly helped his great oratorical himself in Edinburgh, where by 1826 powers. In 1870 he pub. his collection he had reached a leading 'position. of poems, Digle og Sange (new ed. In conjunction with his nephew 1880), and his epic, Aenljot Gelline. Charles Black, he estab. the still exist-His political enthusiasm kept him for ing publishing house of A. and C. Black. He took a keen part in municipal politics, and was twice Lord Provost of Edinburgh, and was mem-Provest of Edinburgh, and was member for the city from 1856 to 1865 as a Liberal. He retired from business in 1865. In 1895 the firm was removed to London. The chief events of the history of the house were the issue of the Tth, 8th, and 9th edsof the Ency. Brit., the copyright of which had been purchased from Constable in 1875, and the they excited much controversy; they Constable in 1827; and the purchase include En Fallil (A Bankruptey); from Cadell of the copyright of Scott's Redaktören (The Editor), 1874; Kongen Waverley Novels in 1851, and of De 386 Black

Quincey's works in 1861. See Memoir, Series), 1878. See Life by Wemyss by A. Nicholson, 2nd edition 1885. Reid, 1902.

Black, John (1783-1855), Scottish journalist, became a parliamentary reporter in 1810, and in 1817 editor of the London Morning Chronicle. In this position he quar-relled and fought a duel with Roebuck in 1835. During his editorship, from which he retired in 1843, Dickens began his career as a parliamentary reporter. He trans. many works from Ger., It., and Fr., and pub. a Life of Tasso, 1810.

Black, Joseph (1728-99), a Scottish physicist, born in France: after an education in Belfast, studied medicine chemistry under Professor William Cullen, whom he succeeded in 1756 as professor of anatomy and chemistry, a position he later ex-changed for the chair of medicine. His chief chemical work includes the discovery of 'fixed air,' Lavoisier's carbonic acid, and his statement of the doctrine of 'latent heat;' the first was of great importance in the study of the chemistry of gases, the second in the study of steam and the evolution of the steam engine. In 1766 he became professor of chemistry at Edinburgh, where he died. See his biography profixed to the ed. of his Lectures on the Elements of Chemistry,

by Prof. J. Robison, 1803.

Black, William (1841-1898), novelist, born in Glasgow: studied art with little success, and became a journalist, writing for the Morning Star, for which he acted as war-correspondent during the Austrian and Prussian war of 1866; he then joined the staff of the Daily Nrus. His first novels, James Meric, 1864, and Love and Marriage, 1868, made no mark, but the publication of In Silk Attire, 1869, and Kilmeny, 1870, were distinctly successful; his great popularity, however, as a novelist, which lasted till his death, may be dated from a Daughter of Heth, 1871. Be's special power was that of vivid description of secondary and authors the secondary and authors are scenery and outdoor life, especially among Scottish mts. and on the sca off the coast of Scotland, combined with an easy and charming narrative style. His long series of novels include The Strange Adventures of a Placeton, 1872; A Princess of Thule, 1874; Madean Violet, 1876; Macleod of Darc, 1878; White Wings, 1880; Shandon Bells, 1883; White Heather, 1885; Interpretable of the Property nd Fast, Highland Lochaber, 1888; Stand g Royston, 1890; Hi Far Craig Royston, 1890; Highland Cousins, 1894; Briscis, 1896; and Wild Eclin, 1898. He was an enthusiastic fisherman and yachtsman. A lighthouse was built to his memory at Duart Point, Sound of Mull, in 1901. graphic illustration of current events, He also wrote a *Life of Oliver* and now publishes both drawings and Goldsmith (Eng. Men of Letters photographs dealing with news and

Black Acts, the name applied to (1) the statutes of the Scottish parl., 1424-1594, which were printed in black-letter; (2) to the Scottish Acts of 1584, passed at the institution of James VI., to suppress Presbyterianism and re-establish Episcopacy. These acts declared the supremacy of the king, overthrew the jurisdiction of the kirk; the functions of the presbyteries and assembly were hunded over to the bishops; it was made treason to attack episcopacy. The acts were abrogated in 1592. (3) An outbreak of outrages and robberies, etc., committed by gangs of men with blackened faces, led to the passing of an act, 1722, making the offence a felony; the act was popularly known as the Black Act; it was repealed 1827.

Biackadder, John (1615-86), a Scottish divine and member of a family whose ancestors were renowned in Scottish history. He studied Glasgow and became distinguished in Latin, Greek, and Oriental languages. He took his M.A. in 1650, and was made minister of Troqueer in Galloway in 1652. He was imprisoned for preaching to conventicles, and later on outlawed. He took refuge in Rotterdam in 1678, but upon his return he was again captured and sent to the Bass Rock, where he died.

Blackadder, John (1664-1729), the

younger, lieutenant-colonel of the Cameronian regiment, served with his regiment during the Highland rebellion, took part in the campuigns of the Prince of Orange in Flanders (till 1697), and, as captain, assisted at many of Mariborough's victories, but sold his commission before the treaty of Utrecht. The remainder of his life. passed at Edinburgh and Stirling, was devoted to ecclesiastical affairs. The Calvinistic convictions of his youth had been confirmed by his philosophi-cal studies at Edinburgh University.

Black Agnes (so called from her complexion). Countess of March, defended Dunbar Castle against Montague, Earl of Salisbury, in 1338, for five months, until, reinforcements having reached her by sea, the Eng. withdrew. The incidents of the siege make the story one of the most ple-turesque in Scottish history.

Black and White, an illustrated weekly, founded in 1891 by Mr. Charles Norris Williamson, and forming from the first a powerful rival to its predecessors, the *Illustrated London News*, and the *Graphic*. Beginning as an artistic journal, it soon became one of the pioneers in photointeresting personalities. The literary matter includes short illustrated stories and articles on politics, society, sport, and professional subjects. editors have included Mr. J. Nichol Dunn and Dr. M'Kew, while among the literary contributors were Swin-burne, Bret Harte, Kipling, Stevenson, and Barry Pain. Herkomer, G. F. Watts. Max Cowper, and Linley Sambourne have contributed on the artistic side.

Black Art, sec Magic.

Black Assizes, the name given to certain assizes at which a very virulent and widespread epidemic of gaol fever, or typhus, broke out; more particularly to one which occurred at the close of the Oxford assizes, July 1577, of which more than 300 persons died, including the high sheriff and many officials of the court.

Black-band Ironstone, in mining and metallurgy, an iron-ore 'siderite, found chiefly in Scotland; it is a carbonate of iron, mixed with a large proportion of coal or bituminous matter. It is of intensely black colour, and was highly prized for its ease in

smelting.



BLACKBERRY

Blackberry, or Rubus fruticosus, is a species of Rosaceae which has many varieties in Britain. The plant is a hook-climber, and frequently roots where the branches touch the earth. thus forming a new plant. The fruit! grows on a flattened thalamus with

borne many one-seeded drupelets: it therefore consists of an eterio of drupes, and is not properly a berry. It is also commonly called bramble.

Blackbird(Turdusmerula), the name of a common bird, found all over Europe, in Asia, and N. Africa. It has been acclimatised in New Zealand. In Great Britain it is a resident, but large numbers of emigrants also come in the autumn. The male is entirely black, with bright yellow beak, taking a deeper and more vivid colour in the breeding season. The female is of



RING BLACKBIRD

a dusky brown, fading to a paler hue The nest, built in thickets beneath. or creeper-clad trees, is of grass and moss, and plastered with mud; the eggs, four to six in number, are blue with brown specks. The B. is a fine song-bird, its notes being clear and loud, but it has not the range or modulations of the thrush. Destructive to fruit and seeds, it also feeds largely on worms, grubs, snails, and is therefore useful in keeping down garden pests. Its old Eng. name 'ousel,' appears in the name of a variant, the 'ring-ousel,' so called from its white neck marks. It is a rare visitor to Great Britain.

Blackbirds, Field of, or Kossovo Polje, a small plain in European Turkey, lying to the S. of Pristina. It is famous as the scene of two great battles: (1) The victory of Sultan Murad over the Servians, whose emperor, Lazar, was killed, and whose empire was overthrown, in 1389.
(2) The victory of Sultan Murad II. and George Brancovics of Servia over

John Hunyady of Hungary in 1448.

Black Book: 1. Of the Admiralty, contains, under the title of 'Laws of Oléron,' the earliest collection of 'sea laws,' dating back to the 14th century. It was first ed. by Sir Travers Twiss, 1871-76, and embraces the various maritime laws and customs on which the judge in the Admiralty Court bases his decisions. 2. Of the Exchequer, is a meagre record of the a conical protuberance on which are royal household in Henry II.'s reign. 3. Of the Household, is a similar for Ireland, 1830 and 1841; Master of record to (2), compiled in Edward the Rolls, 1842; Chief Justice of the IV,'s reign.

4. The term B. B. was Queen's Beach, 1846 (in this capacity also applied to the reports, the accu-le presided at the trial of Smith sations of which are for the most part O'Brien); and Lord Chancellor, 1852; unfounded or extravagant, presented to parliament in 1536, upon which were based the laws for the dissolution of the monasteries.

Black Bulb Thermometer, a maximum thermometer the bulb and part of the stem of which are coated with lampblack and which is enclosed in a vacuous cylinder. It thus provides a delicate instrument for the measurement of temperature by radiation only, and if placed in open sunshine and compared with the readings of a delicate thermometer in the shade. gives an indication of the difference of temperature due to direct solar radiation.

Blackburn, a tn., Lancashire, England, 24 m. N.N.W. of Manchester, 9 m. E. of Preston. It is a municipal co. and parl. bor., returning

two membe in a valley, ing 700 to

40,000 cotton operative

75,000 looms and over 1,300,000 spindles. There is a considerable iron and machinery industry, but the old 17th century woollen trade, when B. was famous for its 'checks' and greys,' has long disappeared. James Hargreaves, the inventor of the spin-Hargreaves, the inventor of the spin-ning jenny, was a native, and his employer, grandfather of Sir Robert Pecl, greatly fostered the growth of the cotton industry. The tn. was in-corporated in 1851, and was made a co. bor. in 1888. The Elizabethan Grammar School is in modern build-ives. These are fine native. Ouen's ings. There are fine parks, Queen's Park and Corporation Park. Mary's Church is a very anct. foundation, and the building dates from 1826. Pop. (1901) 127,626. See Abram, Hist. of Blackburn, 1897.

Hist. of Blackburn, 1897.
Blackburn, Colin, Baron (1813-96), a noted judge, was born in Selkirk, Scotland. In 1838 he was called to the bar, and he became a judge in the Court of Queen's Bench in 1859. The year following he received a knighthood, and in 1876 he was made a life peer and a lord of appeal.

His Contract of Sales was pub. in 1845.
Blackburne, Francis (1782-1867),
Lord Chancellor of Ireland, born in co. Meath: educated at Trinity College, Dublin; called to the Eng. bar, 1805, and to the Irish bar, 1822, when he was employed in repressing disorder in Limerick under the Insurrection Act. He was Attorney-General on, and the chief smelting centres are

in 1856 he was made a Lord Justice of Appeal. In 1866 he again became Lord Chancellor.

Blackburne, Lancelot, Archbishop of York (1658-1743). He was edu-cated at Westminster School, afterwards entering Christchurch, Oxford, in 1676. His rise in the church was due originally to Bishop Trelawney. His disposition was gay, and his manner witty. A certain freedom from the restraint usually observed by the clergy caused many fables to be circulated regarding his 'licentiousness.'

Black Cap, a cap which is worn by the judges of Great Britain when a sentence of death is to be delivered to

a prisoner.

The general colour of the bird is an ashen grey, turning to an olive brown above and pale or whitish grey below. one of the cock-bird alone has the jet-black industry of Lancashire, the weaving cap which gives the name, the hen's of goods used for expo ing brown. It is one being a special feature. 1

the end of summer.

Black-capped Tomtit, or Titmouse, is the Parusatricapillus of N. America, known locally as the chickadee. It belongs to the Paride family, is small but strongly built, has a sharp black bill, and in colour varies between black, white, grey, and yellowish-grey. The British marsh titmouse, or P. palustris, is sometimes given this name.

Blackcock and Heathcock are names often applied to both sexes of the black grouse, Tetrao or Lururus tetrix, though greyhen is a more sultable designation of the female. They are allied to the quail, partridge, and capercailzie, and are common in N. Scotland. The food consists of buds, young shoots, berries, and insects. The plumage of the male is very beautiful, the tail is lyrate, and above the eyes is a piece of bright red skin which becomes more intense during the pairing season. The bird is polygamous, and in the spring the males attract the females by curious crowings and noises as of the whetting of a scythe.

Black Country, The, is a term used to denote the mining and manufacturing district situated partly in the S. of Staffordshire and partly in Warwickshire. It is so named from the numerous factories and coal mines around. The manuf, of iron in all its branches is very largely carried

great central market.

Black Death is the name of a terribes number about 4500, rible pestilence which was pandemic the Piegans about 2000 in B. reservain the 14th century. Though there tion in Montana, 400 in Alberta; were outbreaks in 1361-2 and 1369, Bloods, 1100, chiefly in Alberta; and its worst visitation was in 1348. Besides a proper some 800, chiefly ginning in China—it was probably in Alberta. An epidemic of smallpox a form of the Oriental plague—it decimated the tribes in the middle reached the coast towns of Italy of the 19th century. See Maclean, through Constantinople, and thence Canadian Savage Folk, 1890; Grinnell, spread all over Europe. Its symp-Blackfoot Lodge Tales, 1903; and toms were blood-spitting, putrid pulmonary inflanmation, and black Washington, 1907; and a Siksika. Spots and tumours on thighs and Black-fish: 1. Dullia pectoralis. monary inflammation, and black spots and tumours on thighs and arms. The victim usually succumbed a few days after the appearance of the boils. The death-rate, though phenomenal, cannot be estimated, there being no scientific record of births and deaths. It is believed that 37,000,000 perished in the East, whilst in England alone, of the British Isles, something like 1,500,000, that is, between one-third and a half of the entire population, were mortally affected. It is said that the advent of the contagion was preceded by ominous portents—famine, drought, earthquake, dense fog, and seasonal disturbance. As in the plague at Athens, the ravages of the source led to wild outmore bursts of often to and

Mothers described their debauchery. stricken children, and the sick were left to die and rot in public highways. The enormous mortality is a landmark in Eng. economic history. Laws were futile to interfere with the rapid rise in wages, engendered by the scarcity of labour, whilst Wat Tyler's rebellion is only one outward indication of the far-reaching and inevitable changes that resulted in the relation between landlord and peasant.

Black Earth (Russian tschernozom), a particular kind of loess, forming a rich black soil, containing a large proportion of humus, found stretching over a vast area of Russia, from the Carpathians to the Utal Mts., and occupying some 150,000,000 ac. Its: depth varies from a few ft. to 7 or 8 ft. It is wonderfully fertile, bearing abundant grain crops for many consecutive years without manure.

Blackfeet, the Eng. name given to a tribe and to a confederacy of N. American Indians, either as a translation of a native word, or, according to tradition, from the smoke-blackened mocassins of a tribe first met by the whites. Thenative name of the tribe is Siksika. The confederacy was formed of the Picgans, the Kinos or Bloods, and the Siksika or B. proper. All are of Algonkian stock. The confederacy: was once the strongest Indian power

Wolverhampton, Dudley, Wednes- in the N.W., and extended from the bury, W. Bromwich, Walsall, Bilston, Rocky Mts. to the head waters of the and Tipton, while Birmingham is the Missouri, and into what is now Alberta and Saskatchewan. At the present Black Death is the name of a ter- day the tribes number about 4500.

In Alaska what is known as the B. belongs to the genus Dallia, characterised by a very thin skeleton and by the dorsal fin being far back—in the latter way resembling a pike. The scales are very small and embedded in the skin. It is a fresh-water fish, and is used for food by the people 2. Centroin some parts of Alaska. lophus niger, belonging to the Stromateidæ. This fish, something like a teidie. This fish, sometning use a perch, has very small cycloid scales which are deciduous. The species of which are deciduous are widely distributed. this family are widely distributed, and this particular species has been found on the coasts of England. The name is also given to other varieties of dark coloured fishes.

Black Flux, a mixture used in the reducing of certain ores. It consists of powdered carbon and potassium carbonate, and is usually prepared by heating crude cream of tartar or argol

with half its weight of nitre.

Black Forest (Ger. Schwarzwald), a thickly-wooded mountainous dist. of S.W. Germany, running on the E. s.w. Germany, running on the E. side of the Rhine valley, which bounds it from Basel on the S. It extends to the Neckar Valley on the N. Two-thirds of the dist. lies in the grand duchy of Baden, on the W., the remainder in the kingdom of Würtemberg, on the E. Its area is about 1800 m. grant its length 100 m. greatest sq. m., its length 100 m., greatest breadth 36 m. The southern portion is the wildest and most mountainous, containing the highest peaks, Feldberg 4898 ft.; Herzogenhorn, 4600 ft. Blössling, 4260 ft. The Kaiserstuhl (Emperor's Chair) is an independent group of volcanic origin, 10 in. long, 5 m. broad; the highest point being 1760 ft. The valley of the Kinzig 1760 ft. The valley of the Kinzig divides the southern from the lower northern portion. The forests of the dist. consist mainly of spruce, silver fir, Scotch pine, on the higher slopes, with birches, beech, and oak below. The former large trade in logs floated down the Rhine has decreased, as most of the timber is consumed in the dist., especially in the manuf. of wood pulp, and also in the long estab. industry of toys, wooden clocks, and heath was the scene of the rebellious musical instruments, etc. There are gatherings of Wat Tyler (1381) and many mineral springs, those of Baden-Jack Cade (1450). The Cornish rebel-Baden and Wildbad being the best known. The principal that, Freiburg, Rastalt, Offenburg, Lahr, lie along the W. border. As a touring resort the B. F. has long been famous for its beautiful valleys, picturesque wooded heightsand mountain and forestlakes.

Black Friars, see DOMINICANS. Blackfriars Bridge, a bridge over the Thames, London, England, next below Waterloo Bridge, and above Southwark Bridge, the railway bridges Blackfriars and Cannon Street stations intervening between the two last. B. B. was begun in 1865 and opened in 1869, from designs by J. Cubitt. It was widened for the London County Council electric tram-way along the Embankment to Westminster Bridge in 1907-9. The name commemorates the monastery of the

use during the 16th century. designated certain soldiers and camp followers. It also meant the lowest servants of a nobleman's household, who performed the dirtiest and blackest work in the kitchens.

Black Hand, a mysterious society,

existing among the Its. in New York, for purposes of blackmail and extortion. It is said that 30,000 men live by B. H. crime. The police appear to be powerless against the Black Handers, who never fail to revenge refusal or exposure on the part of a victim. This revenge consists in stabbing, revolver shots, bombs, incendiarism, and child kidnapping. The Black Handers sign their letters of threat with a picture of a black hand clutching a dagger.

Black Hawk, an American Indian chief who took part in the war of 1812 against the Americans. He was finally defeuted in the Black Hawk War, 1832, after many time: to agree to treaties made to that his tribes should reling: lands. After being releas Fortress Monroe, B. H. s

Iowa, where he died. metropolitan bor. of Lewishem, in the S.E. of London. The common, once about 200 ac. in extent, but now reduced to 70 ac. by building en-croachments, lies S. of Greenwich Park. On the S. of the common is Morden's College, founded by Sir John Morden at the end of the 16th century as an almshouse or pen-sionary for Turkey merchants. The

lion led by Lord Audley was crushed in a battle on B. in 1497, and here the people met Henry V. after Agincourt and the army Charles II. at the Restoration. Golf was certainly played on B. common earlier than elsewhere in England, tradition dating its introduction to 1608 and to The Blackheuth Rugby James I.

Football Club and its ground, the Rectory Field, is famous. Black Hills, a mt. system S.W. of S. Dakota, and N.E. of Wyoming, U.S.A. The area covered by the hills is about 9000 sq. m., and the highest point, Harney Peak, attains an alt. of 7403 ft. Large forests of pine and other coniferous trees cover their slopes. Among the minerals deposited there are gold, carboniferous limestone of good quality, and lead. Two branches of the R. Cheyenne encom-pass the area. The fertility of the valleys renders dairy produce most

successful. Black Hole of Calcutta, the popu-Blackguard was a term much in lar name given to an atrocity per-It petrated by Suraj-ud-Dowlah, Nawab of Bengal, during the Seven Years' War. When he sacked Calcutta and seized Fort William in 1756, most of the Eng. residents escaped, but some few, und remained ') surrender native prince. were

' chamber, 18 ft.

small windows

iffing summer's night, and next morning 23 alone of the 146 prisoners staggered out, or were carried out, alive. In 1902 Lord Curzon dedicated a monument in memory of the incident, the site of which is now marked by a marble slab. A vivid account of this act of barbarism which was avenged by the victory at Plassey in 1757, will be found in Lord Macaulay's Life of

Clive. Ting in John Stuart (1809-95), a ter and scholar, born Studied at the Maris-Aberdeen, Edinburgh 825-6, and in Germany

at Bernn and Göttingen. In 1834 he was admitted to the Faculty of Advo-Blackheath, an open common and was admitted to the Faculty of Advo-a residential district belonging to the cates, but devoted himself to Eng. literature and to classics. He was professor of humanity (Latin) at Aberdeen from 1841 to 1852, when he became professor of Gk. at Edinburgh University, a chair he held till 1882. His lectures were extraordinarily successful, especially in arousing a new enthusiasm for the classics; he took a prominent part in educational re-The form and the remodelling of Scottish ardour into such subjects as the study of modern Gk.; he was largely instrumental in the founding of a professorship of Celtic at Edinburgh University, and the grievances of the High-land crofters, and all questions of Highland and Scottish nationality and customs drew his enthusiastic support. In politics he was a stalwart independent Radical. His picturesque figure and dress was familiar to every His writings one in Edinburgh. include translations of Faust, 1834; Aschylus, 1850; and the Iliad, 1866; Four Homer and the Ilind, 1866; Phases of Morals, 1871; Horæ Hellenicæ, 18 Literature of th 1876; Land Scottish

Laus, 1885; Wisdom of Goethe, 1883; Life of Burns, 1888; Scottish Song, 1889; Christianity and the Ideal of Humanity, 1893; and sev. vols. of verse, original and translations. See A. M. Stoddart, J. S. Blackie, 1895; A. S. Walker, Scieded Poems, 1896; A. Kennedy, Professor Blackie, H. 1895.

Blacking, a mixture applied to leather, especially that of boots and shoes, in order to produce a polished brilliant black surface. It consists of powdered bone-black, raw sugar or molasses, sulphuric acid, and vinegar. B. is either made up in a semi-liquid form or more usually now in the form of a paste. Day and Martin's B. in stoneware bottles has long been famous. For harness leather the chief foundation is bees'-wax mixed with turpentine, ivory black, and copal varnish.

Black Isle, a peninsula on the E. of Ross and Cromarty, Scotland; it lies between Cromarty Firth, N., and Beauly and Inverness Firths, S. and S.E.; on the N.E. and E. it projects into Moray Firth. It has a coast-line of 52 m. The Highland R. runs from Muir of Ord to Fortrose. The printer of Corporational Mathematical Property and Mathematical Property an tns. are Cromarty and Fortrose. soil is fertile; the highest point of

the Mulbuic ridge is 838 ft. Black-lead, Plumbago, or Graphite, a mineral crystallising in the rhombohedral system. It is usually found in six-sided tabular crystals, black or dark steel-grey in colour, greasy to the touch, and with a hardness of 1. Chemically it consists of carbon with impurities of iron sesquioxide and clay. It resists chemical change more than other forms of carbon, fusing only in the electric arc, and is unaltered by most acids. It is a good conductor of electricity, and is so soft that it marks anything it touches: hence its use for the manufacture of writing pencils and as a polish for ironwork. Its

universities. His literary output was greasy nature makes it an excellent great, and he threw himself with dry lubricant for the breech-locks of rifles, etc., where a volatile lubricant is not desirable. Graphite is found in heds and embedded masses, scales, or leaflets in granite, gneiss, mica schist, and crystalline limestone. It occurs amongst slate in Cumberland and gneiss in Scotland; quantities are exported from Ceylon, and that found at Irkutsk in Eastern Siberia is probably the best in the world. America is supplied by beds at Ticonderoga in N. Carolina, and at Sonora in Mexico. It is artificially produced in iron fur-naces and is produced electrically from anthracite for the manufacture

of black-lead pencils. Black Letter, the name given to a type used in the earliest printed books, sometimes used widely as equivalent to 'Gothic,' sometimes confined to the early English types used by Caxton. in which case it is also styled English type.' The words following are printed in modern black letter, which is used in ornamental printing and for captions, headlines, titles, etc. Early types were copied from the handwriting in use at the time, and thus the German script was adopted. Gothic or B. L. was used extensively all over Europe in various forms and modifications. It was succeeded by the It. or Rom. type, founded on the purer and simpler It, or Rom, script of the 12th century, but it long remained in use for printing bibles, law-books, proclamations, and the like. B. L., or rather a modification, is still the national Ger. type of printing, but there is a growing movement to print more books in Germany in Rom. type. In old church calendars the greater festivals and saints' days were marked by being printed in red (' red-letter days'), the lesser days were printed in black ('black-letter days'), hence the term came to be applied to unlucky, inauspicious days.

Black List: 1. The name given to a printed list issued to subscribers by various trade protection societies. which gives the names of those whose credit is bad, thus serving as a warning against allowing them to incur fresh debts. Such lists are made up from judicial and other various sources, and include the records of sources, and include the records of bankruptcies, arrangements or compositions with creditors, unsatisfied judgments for debts, bills of sale, liquidations, warrants of attorney, dissolution of partnership, and all matters of public record that affect the financial standing of the parties named in the list. 2. The Licensing Act of 1902 provided that when a person had been convicted of the offence of habitual drunkenness be offence of habitual drunkenness, he

should not for three years obtain pub. work, poems, was not successliquor from any publican or licensed club, and that the police should keep a list, popularly styled the B. L., of such convictions in the area of the court where such convictions were recorded. It is believed that this regulation has become a dead letter.

Blacklock, Thomas (1721-91), Scottish poet, born at Annan, Dumfriesshire, of humble parentage, lost his sight through small-pox when six months Some early poems which he first pub. in 1746, led to his educatio studied early admirer

and persuaded him to abandon his leaving Scotland for the W. Indies. He supported himself by taking pupils in Edinburgh. See H. Mackenzie's edition of poems with Life, 1793.

Blackmail, a legal term, has had three distinct meanings: 1. It once referred to rent paid in labour, corn, baser metal (reditus nigri), so called to distinguish it from silver money (mailles blanches). 2. In the border country between England and Scotland it meant tribute in coin or cattle, extorted from farmers by moss troopers, as a guarantee of immunity from raids. Though this custom was made a felony in 1601, it continued till the union of the two countries in 1707. 3. Extortion of money or goods on threat of libel, exposure, or prosecution is the modern signification of the word.

Black Monday was Easter Monday 1360, when a storm of terrible violence occurred. Shakespeare mentions the eventin Merchant of Venice, il.5-25.

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Supporting the revolution he Supporting the terroduction knighted, 1697, and became physician to William III. and Queen Anne. He was a voluminous clad (9210 tons, 13°6 knots, 40 guns, writer of dull and turgid epics, which heaviest 68-pounders), was hunched in 1861. Another B. P., armoured though they were praised by Addison, though they were praised by Addison, and one was thought worthy by launched in 1901 by the Thames Shipbuilding Co. The first B. P. in the Pag navy ser Queen Anne. writer of dull and turgid epics, which merit the ridicule of Pope's Dunciad, though they were praised by Addison, and one was thought worthy by Johnson of appearing in his collection of the British poets. Of his six epics, in sixty books, the Creation, 1712, expounding Locke's philosophy as against the infidelity of Hobbes, was the most praised.

Doddridge Blackmore, Richard (1825-1900), an Eng. novelist, born at arrated

the liver to we will and market-

ful, but his first novel. Clara Vauchan. 1864, was at once welcomed. In 1869 was pub. his greatest and most seccessful work, Lorna Doone, which marked the rise of a new romanticism, Its stirring plot, its charming heroine, and its sturdy, manly hero, Jan Ridd, the wild doings of the marauding Doones, and above all its masterly and exquisite realisations of Exmoor scenery and of old Devonshire manners and customs, make the novel a classic in its way. Its popularity has called for constant new eds. B.'s next novel. and perhaps his best after Lorna Doone, was The Maid of Sker, 1872. His other novels include: Cradock Novell, 1866; Cripps the Carrier, 1876; Christowell, 1880: Springhaven, 1887; Perlycross, 1891; Tales from the Telling House, 1896; Dariel, 1897.

Black Mountains, a group of mts. W. of N. Carolina, U.S.A. Most of the area is situated in the co. of Yancey. Of the Appalachian system they are the highest mts. Its chief peak is Clingman's Peak (6707 ft.). Firs abound on their slopes.

Blackness, a Scottish vil. of the co. of Linlithgow. It is situated on the Firth of Forth, 3½ m. from Bo'ness.

Blackpool, a municipal bor. (1876), co. bor. (1904), and popular watering-place, Lancashire, England, 46 m. N. of Liverpool and 8 m. S.W. of Fleetwood, on the Irish Sen between the mouth of the Ribble and Morecambe Bay. B. is one of the most popular of seaside resorts in the N. of England, attracting large crowds of excursionists, especially from the

gair, fine sands, need by a 3 m. piers, theatres, then studied concert and dancing halls, winter in Lo

righ, and many other

and was drive

Black Prince, 1110 (1990 10), the name by which Edward, Prince of Wales, eldest son of Edward I., King of England, is commonly known. He was born at Woodstock, June 15; made Earl of Chester, 1337, Duke of Cornwall, 1337, created Prince of Wales, 1343. His military corner of wales. 1343. His military career began with the Fr. campaign of 1346, and he distinguished himself at Creey and at the siege of Calais. He was one of the gurace no relies to the first original knights of the Garter and

to London with King John a prisoner in his train. He took part in the House to freedom of debate and expedition to France in 1359 which security from interruption. When ended in the peace of Calais, 1360. In 1361 he married Joan, Countess of to the House of Lords to hear the were poor. His dominions shrank, and after the cruel and useless sack of Limogos, 1370, he returned to England, resigning his dukedom in 1372. He was buried in Canterbury in the great tomb with his arms above, which still remains. His name of Black Prince cannot be traced earlier than the 16th century, tradition makes it due to his black armour. See J. Moisant, Le Prince Noir en Aquilaine, 1894; R. P. Dunn-Pattison, The Black Prince, 1910; and Rev. W. Hunt's biography in Dict. of Nat. Biography.

Black River, a riv. of N. York, U.S. A. It forms the houndary between

U.S.A. It forms the boundary between the counties of Hamilton and Her-kimer, and empties itself in Lake Ontario. Its length is 200 m.

Blackrock, the largest of the suburbs

was present at the naval battle off Winchelsea with the Spaniards in 1350. In 1355, as lieutenant for his House of Commons, These duties are father in Gascony, he reconquered for England much ter. in the S., and made many marauding expeditions, and in 1356 won the great victory of Politicrs, showing himself a master of tactics, and returning in triumph from the attempt of Charles I. to arrest the five members in 1642 and to London with King John a prisoner as signifying the right of the Lower as signifying the right of the Lower the House of Commons are summoned Kent, his cousin, and in 1362 was King's speech from the throne or to made Duke of Aquitaine, where he attend at the giving of the royal attend at the giving of the royal assent to bills, B. R. has to summon ruled as a vassal sovereign. In 1367 assent to bills, B. R. has to summon he lent his aid to Pedro the Cruel, their attendance; at his approach he lent his aid to Pedro the Cruel, their attendance; at his approach deposed King of Castile, led his army into Spain, and defeated the usurper knocks thrice and announces his Henry of Trastamare and Bertrand du Gueselin at Najera. The expedition ruined him in health and resources, and on his return began the revolt of his vas-al barons. He was too ill to suppress the revolt, and the military capacities of John of Gaunt were poor. His dominions shrank, office of B. R. is held by a distinguished then the word used is 'desires.' The office of B. R. is held by a distinguished military or naval officer; the salary is £1000 a year.

Black Sea, or Euxine (anct. Pontus Eurinus, Turk. Kara Dengis), an inland sea situated between Eastern Europe and Asia Minor, bounded on the N. and E. by Russia, on the W. by Roumania, Bulgaria, and Turkey, on the S. by Asia Minor. Its greatest length is about 720 m., and the greatest breadth 380 m. The total area is about 170,000 sq. m. By the Strait of Yenikale it communicates with the Sea of Azov on the N., and by the Bosphorus, Sea of Marmora, and the Dardanelles with the Mediterranean. On the N.E., E., and S.W. the coast is high, and flat on the N. and N.W. Its maximum depth Blackrock, the largest of the suburbs of Dublin, ireland. It has \$089 inhab, and is a favourite seaside resort.

Black Rod, an official of the British House of Lords, the full style being the 'Gentleman Usher of the Black Rod.' The name is derived from his about the insignia of his office, an ebony rod topped with a golden lion. The office dates from 1350. B. R is also the first usher of the court and the kingdom, and as such takes part in all court and other ceremonials; has othe prin, usher of the Order of the Garter, and as such his duties of the Garter, and as such his duties of the Garter, and as such his duties as include the guarding of the door at a official of the House of Lords are the British the water poured in by the large currents, such as the Dannhe, Dniester, Irmak, and Sakaria. There is a strong surface-flow out through the Bosin all court and other ceremonials; phorus, and a deeper inward flow for the Garter, and as such his duties of the Garter, and as such his duties as times render the navigation of the au official of the House of Lords are the Bosin and occasional drift-ice somethan official of the House of Lords are stimes render the navigation of the automost important; they correspond to those of the Sergeant-at-Arms in the House of Commons. He maintended the power to difficulty, though the dangers have at times been considerably over-stimated. There is no perceptible tains order and has the power to difficulty devoid of organic life, the of the House or other offences noticed in hy the large to the shores, except on the E. and W. of the Crimean peninsula. The salinity of the water is on the average only half that of the extension peninsula. The salinity of the each of the E. and W. of the Crimean peninsula. There is no the close to the shores, except on the E. and W. of the Crimean peninsula. The low-story of the each of the E. and W. of the Crimean peninsula. There is no the close to the shores, except on the E. and W. of the Crimean peninsula. The close to the enormous body of the av reaches the prodigious figure of over

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exist below 100 fathoms. The chief! ports on the sea are Poti, Odessa, Batum (which by means of the railway to Baku serves as a point of connection between the B.S. and the Caspian), Nikolaiev, Kustendji, Sulina, Kherson, Eupatoria, Kertch, Sevas-topol, and Trebizond. There are no islands of importance. By the treaty of Paris (1856) the sea was closed to all ships of war This provision, however, was abrogated in 1871, and Russia and Turkey both have fleets in its waters.

Black Sea Government, or Tchernomorsk, ter. of Transcaucasia, Russia, The dist. is a narrow strip of land lying between the coast of the Black Sea and the western slope of the Caucasus Mts. Cap. Novorossysk. Area, 2836 sq. m.; pop. 54,228. Black Snake, or Zamenis constrictor,

a harmless, non-poisonous ophidian reptile of the family Colubridee. It is a slender snake, and the male is smaller than the female; the largest specimen does not exceed 6 ft. in length. The colour is usually a dark shining black above, slate-grey beneath, with white markings, and a black tongue, but some of these animals are pale green and yellow, and are called green racers. The snake can swim extremely well, move swiftly on the ground, and climb lofty trees, and on all its expeditions can find food, as it devours frogs, toads, mice, smaller snakes, insects, birds, and eggs. It inhabits both North and South America.

Blackstone, a tn. of Massachusetts.

U.S.A., on the Blackstone R., 23 m. S.E. of Worcester: pop. 6100.

Blackstone, Sir William (1723-80), commentator on Eng. law, born in London, was educated at the Charterhouse and Pembroke College, Oxford; entered at the Middle Temple, 1741, and was made fellow of All Souls, 1744. In 1749 he became recorder of Wallingford. In 1753 he abandoned his legal practice and returned to Oxford to college duties and lecturing to pupils. In 1758 he became the first Vinerian professor of law, and read the first of his lectures to the university; their success led to much copying and a pirated ed., and in 1765 he pub. the first vol. of the Com-mentaries on the Laws of England, and the four vols. were completed and plb. in 1769. The reputation which he thus made drew him back which he thus made drew him back to practise and public life. He was member of parliament for Hindon, and later for Westbury, and in 1770 was made a judge of the Court of Common Pleas. B. made no mark as a judge, ar are his miscellaneous writings of line; his fame rests upon his Common right alone. A part from

alone not only as the indispensable text-book for lawyers for nearly a century, but also as the groundwork or model on which the body of Egg. law was built up in America and the British colonies. Written in a clear and, above all, a readable style, it gave the first clear picture of Eng. law as a whole. It has permented the whole idea of law for the ordinary man, and for long was treated with as much respect as if its text contained a final legal decision to which all must bow. Historians and jurists have broken the false position in which it was placed, but it must be remembered that the author aimed only at what he succeeded in achieving, an admirable and lucid exposition of the great body of law, which till the appearance of the Commentaries was a closed book to all but the highly trained expert.

Blackthorn, the popular name of the sloe (Prunus spinosa), a common shrub in hedgerows and thickets, marked by its black stems, hard sharp spines or thorns, and the pure white blossoms which appear before the leaves in March and April. The fruit, generally known as 'sloes,' is a small bluish-black drupe of a sour flavour.



BLACKTHORN

The species belongs to the genus Prunus, natural order Rosacen; from a wild species of I'runus the cultivated plum has sprung, but probably not from the sloe. The hardness of the wood of the B. and the fact that its black bark takes a fine polish, makes it a favourite walking-stick; in Ireland its utility for making 'shillelahs' or cudgels has long been well known.

Black Thursday, Feb. 6, 1851, the date of a bush fire of unprecedented Victoria, Australia, magnitudo in causing enormous damage and loss of farming stock.

Vomit, the characteristic Biack coffee-ground vomit of yellow fever. his Comment ries alone. Apart from It is usually met by doses of crossote any merits of demerits, they stand at short intervals, and the application abdomen.

Blackwall, a dist. included in the metropolitan bor. of Poplar in the E. of London, England. It is a riverside dist. N. of the Thames, containing the E. India Docks and the Thames Iron Works, where have been built many vessels for the British navy. It has been a ship-building centre from early times. The B. Tunnel, giving access from the N. to Greenwich and the neighbouring dists.. was wich and the neighbouring dists., was begun in 1892 and opened in 1897. It is, with approaches, over 3000 ft. long, 1200 ft. being beneath the river; its internal diameter is about 24 ft. It cost nearly £1,500,000, and was designed by Sir Alexander Binnie.
Blackwall, Anthony, M.A. (1674-1730), classical scholar, graduated at

Emmanuel College, Cambridge, and was early appointed headmaster of the Derby School. From 1722 to 1730, with the exception of the years 1726-29, when he was rector of Clapham. Surrey, he was headmaster at Market Bosworth Grammar School, Leicestershire. The wretched experiences which Dr. Johnson had at this school as assistant master belong to a period subsequent to B.'s direction. His most famous work, The Sacred Classics, in which he demonstrated the purity of the Greek Testament, appeared in 1725. In his Introduction to the Classics, 1718, he gave a scholarly description of the beauties of the ancient writers.

Black Watch, the name of the first of the Highland regiments, so called because its uniform was a dark tartan whilst the regular soldiers wore red. In 1668, the year of its creation, John, second Earl of Athole, was granted a commission to raise a body of men to keep the peace in the Highlands. Three companies only existed from 1704 to the Union, these being under the direct control of the treasury as regards pay, uniform, and fire-arms. But in 1729 the number was raised to six, three of 100 men each and the remaining of 70. Drawn chiefly from the Whig clans of the disintegration of red corpuscles Campbells, Munros. etc., the B. W. through the action, probably, of the enforced the disarming act under malaria parasite. Under favourable George II., and effectually helped to circumstances, the liver is capable of prevent any further national risings. In 1743 this regiment, now enrolled as the 42nd, served in Flanders, fighting at Fontenoy, etc. A monument, erected by the officers in Dunkeld Cathedral, commemorates all who had died in buttle up to the settlement of the Indian Mutiny in 1859. 1881 what had been the 42nd and 73rd Regiments were drafted into the first

of an ice-bag to the upper part of the | After a south-easterly course, it flows with the Chalmer into the North Sea. with the Chaimer into the North Sea. 2. A riv. of Ulster, Ireland, rising in the S.W. of Tyrone, and falling into Lough Neagh at the S.W. corner. It is the boundary between Tyrone and Armagh. 3. A riv. in the S.W. of Cork co., Ireland. Rising 16 m. N.E. of Killarney, it reaches the sea at Yourchal after a course of some 106 Youghal, after a course of some 106 m. Navigable as far as Cappoquin. Blackwater Fever, a very fatal, infectious disease occurring in tropical countries and usually associated with malaria. It is characterised by irreguintermittent fever, vomiting. difficult breathing, and discoloured urine. Opinion varies as to whether it should be regarded as a specific disease, or whether the symptoms are merely a development of a malarial affection. It appears to be almost exclusively confined to the white race, and is found in India, Bengal, tropical Africa, Greece, Sicily, S. America, and parts of the United States. Cases are reported from districts where the malarial parasite is not rife, but it has been pointed out that the characteristic symptom, hemoglobinuria, is met with in other disorders common to tropical countries, and the tendency at the present day is to limit the term to the condition which has been preceded by some form of malaria. Various origins have been proposed for the disease: that it is due to tickbite, that it is due to a blood parasite, that it is a quinine intoxication, and that it is caused by a form of the malarial parasite. The theory that it is occasioned by the excessive use of quinine has had considerable support,

since Koch has observed that after a malarial patient had neglected quinine and then taken a large dose, B. F. was developed. For this reason quinine was formerly discouraged in the treatment of the disease, but tended to show that to be an unnecessary precaution. The presence of hæmoglobin or red-colouring matter in the urine is the result of the

of quinine, following upon its disuse for some time, has a depressing effect upon the liver, so that it is no longer able to deal with the débris of the red corpuscles, which therefore passes into the urine. Regular doses of into the urine. Regular doses of quinine, therefore, are desirable to destroy the malaria parasite which is and second battalions of the B. W. Blackwater: 1. A riv. of Essex, Condition as well as of the antecedent England, rising near Saffron Walden. The aim of the treatment is

circumstances, the liver is capable of dealing with this waste product and

the urine remains clear. A large dose

to relieve the congestion of the liver, to destroy the parasite, to counteract shock, and to guard against nephritis, which is a common and dangerous complication. Epsom salts relieve the congestion, quinine must be administered for the destruction of the parasite, though the manner of its use may be modified by the previous quinine habit of the patient. A copious supply of liquid is necessary to keep the kidneys well flushed and to allay the constant thirst, and the chances of recovery are improved by removal to a non-malarial district, if possible.

Blackwell, Alexander, probably the brother of Dr. Thomas B. Alexander was born in Aberdeen early in the 18th century. He came up to London, having been to Aberdeen University, according to the Bath Journal, and was employed by a printer named Wilkins as a corrector of press. He married a wife with a goodly dowry, and set up in business as a printer. He was ruined by the combination of the other printers against him, and spent two years in a debtors' prison, being released therefrom by his wife's talent and industry. He then managed the estates of the Duke of Chandos at Cannon for a time, after which he went to Sweden and took up model farming, first having been physician-in-ordinary to the king. He was be-headed on Aug. 9, 1747, for treason, having attempted in March to induce the king to exclude the infant crown prince from the succession. The real inwardness of this supposed plot has never been discovered.

Blackwell, Elizabeth, the wife of Alexander B., was probably the daughter of a well-to-do merchant. James Bruce's story that she was the daughter of a stocking merchant of Aberdeen has no authority. She extricated her husband from a debtors' prison by making use of her artistic talent. Encouraged by Sir Hans Sloane, Dr. Mead, and Mr. Rand the curator of the Chelsea botanical gardens, she wrote a book with 500 illustrations of medicinal plants in colour. The work appeared in 1737, in two folio vols., and is undoubtedly very well executed, and has a practical value. No further mention is made of Mrs. B.; the date of her death, and even whether she had any children or not, being unknown. Another Elizabeth Blackwell (b. 1821) was the first woman to obtain a medical diploma in the U.S.A.

Blackwell, George (1545-1603), arch-priest, born probably in London. He sgraduated at Trinity College, Oxford, and from Oxford he went to Douay, where he was ordained in 1574. In

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1576 he returned to England, where his creed brought him into trouble. In 1598 he was made archpricst over the secular clergy of England and Scotland, but was deprived of the office in 1608. He died in gool at Southwark.

Blackwell, Thomas (1701-57), a classical scholar, son of the Rev. T. B., was born on Aug. 4 at Aberdeen, and educated at a grammar school there, and at Marischal College, Aberdeen University. He took his M.A. in 1718, and was presented with the fellowship of Greek at Marischal College in 1723. In 1748 he was made principal of the college, a post which he held till his death, being the only layman to hold the post since it was under crown patronage. He became Doctor of Laws in 1752, and died at Edinburgh on March 8.

Blackwood, Vice-Admiral Sir Henry

burgh on March 8.
Blackwood, Vice-Admiral Sir Henry (1770-1832), the son of an Irish baronet, was born on Dec. 28. Entering the navy in 1781, he became captain, 1795; rear-admiral, 1814; vice-admiral, 1811. He was warmly congratulated by Nelson for his conduct in a sea fight between the Penelope, which B. was commanding, and the Guillaume Tell in 1800. He was with Nelson at Cadiz, and afterwardsserved under Lord Collingwood. In 1807 he narrowly escaped drowning at the entrance to the Dardanelles, where his ship was destroyed by fire. He was present at the blockade of Toulon, and in 1819 he was made K.C.B., and commander-in-chief in the E. Indies. He was commander-in-chief at the Nore from 1827 to 1830, and he died to the light of the Religibility of the Religious of the light of the Religious of the son of the light of the Levillides.

at Ballyleidy, co. Down, on Dec. 17.

Blackwood, John (1818-75), the sixth son of the founder of Blackwood's Magazine, born at Edinburgh on Dec. 7. He was educated at Edinburgh High School and University. He superintended the branch of B. 8 business in London from 1840 to 1845, during which time his office was the resort of many literary men. In 1845 he returned to Edinburgh on the death of his eldest brother, and in the following year became editor of Blackwood's Magazine, and head of the publishing department. He was a friend of George Eliot. He died October 29.

Blackwood, William (1776-1834), founder of the well-known publishing house, and originator of Blackwood's Magazine, was born at Edinburgh on Nov. 20. The family of B. has been traced back to the 15th century, one of the members being lord provost of Edinburgh from 1711 to 1713. B. served his apprenticeship to the book-

was issued. Its literary merit procured for it success from the first, and B. gathered together a staff of such ability and distinction as to keep up its reputation. Among the many notable men who contributed to it then may be mentioned; Wilson, whose nom de plume was Christopher North, Dr. Moir (Delta), Scott, De Quincey, Galt, Magian, Thomas Aird, Hogg, etc. William B. himself was chief manager, and managed all correspondence connected with it until his death, which took place on Sept. He was succeeded in the busi-

ness by his sons.

Bladder, a hollow organ situated in the front part of the pelvic cavity. Its wall is composed of muscular tissue, and the urinary fluid from the kidneys is conveyed to it by two ureters which open into the under part of the B. The fluid is expelled through the urethra, the opening of which lies a little in front of the entrances of the ureters. The shape when empty is approximately that of a tetrahedron, but it The size varies with the amount of contained fluid and with the individual. The function of the B. is to serve as a reservoir for the urinary fluid from the kidneys before it is forted from the kidneys before it is ejected from the body. Inflammation of the mucous membrane of the B. is known as cystitis, which may be either acute or chronic. In acute cystitis a blood gorged condition of means of the cystoscope, an instrument by which an electric light is
conveyed into the bladder by a narrow tube fitted with a lens. The
disease may be caused by the decomnostition of the cystoscope, an instrucornubiense, is a genus of Umbelliferæ common to Europe and W. Asia.
The fruit is a schizocarp which is
much inflated.

Rladder. the mucous membrane with ulceracantharides. The symptoms include pain in the supra-pubic region, a constant desire to urinate, and opaque or bloody urine. The treatment aims at

as a bookseller, dealing principally in of benzoic acid. Morphia suppositories old books, in 1804. In 1811 he set up are used if great pain is felt. Chronic as a publisher on his own account, cystitis may arise from the effects of and six years later, in April 1817, the stone or through neglected or refirst number of Blackwood's Magazine peaced acute cystitis. The symptoms are similar, but not so intense, except that there is often more pus and albumin than in the acute form. The cause should be dealt with, whether calculus, antecedent prostatitis, or stricture. The B. should then be first plain boiled water and then water containing 1 in 15,000 of per-chloride of mercury. The patient enionice of mercury. The patient should be encouraged to expel the irrigating liquid from the B. himself. To give the B. a rest, it may be drained by incision. Obstinate cases often yield to a change of general surroundings and diet. The rest cure at Wildurgan is recommended for at Wildungen is recommended for cases with alkaline urine and the waters at Contrexeville for acid urine. Other disturbances of the ordinary functions of the B. are irritability, often due to worry, overwork, or ner-vousness; incontinence of urine, vousness; incontinence of urine, generally in children; and retention of urine, perhaps a nervous failure or actual obstruction as the cause. In each case the cause should be dealt each case the cause should be dealt with. Incontinence in children generally cures itself; in older people general hygiene and habits of life should be looked to, and small doses of belladonna and the use of the faradic current help to effect a cure. Bladder-nut, or Staphylaceae. It is a species of Staphylaceae. It is a chere which were in another bands

shrub which grows in northern lands, and has a large, bladdery capsule as its fruit. The seeds are edible and

vield oil.

disease may be caused by the decomposition of retained urine, the irritacens, is a species of Leguminose culting effect of stony concretions, the tivated in India and S. Europe. The use of unclean catheters, the presence of the hard o of the bacilli of fevers, or gonorrhea, a strong wind, and thus scatters the or by the effect of certain irritants, as seed. The leaves have properties similar to those of the genus Cassia. and are used in the adulteration of senna.

Bladder-worm, or Hydatid, a stage bloody urine. The treatment aims at removing the cause, if calculi, relieving the painful symptoms, and encouraging the healing of the inflamed membrane. Very hot baths and the application of hot flannels are useful develops into the larval form, when in relieving pain, and plenty of barley a cyst or bladder is formed round water should be drunk, while no strongly flavoured food or drink should be permitted. If the urine is or vital portion is everted, the tail is should be permitted. If the urine is or vital portion is everted, the tail is acid, alkaline waters such as Vichy thrown off, and the worm proceeds to should be drunk; on the other hand, develop segments and becomes the alkaline urine should be met by doses complete tape-worm.

Bladderwort, or Utricularia vulon Scotland has forty-nine maps pre-tris, is an aquatic carnivorous plant pared by Timothy Pont, and many the order Lentibulariacee found in local details by Sir John Scott. The garis, is an aquatic carnivorous plant of the order Lentibulariaceæ found in ditches and ponds in Scotland and It occurs as a submerged water-plant with finely-divided leaves. but the flowers appear above the surface on short steins; the plant has no On the submerged leaves are borne curious little bladders, oneeighth to one-quarter of an inch in diameter. They are filled with water, and the entrance is effected by a valve which is a sort of trap-door, guarded by long hairs to prevent large creatures from entering. Small crustacea and other animals pass in by the trap-door, but cannot return; and when the dead prisoners are decomposed they are absorbed by the cells which line the bladder.

Bladersburg, a vil. of Maryland, in the U.S., situated on the E. branch of the Potomac R., 6 m. N.E. of Washington. On Aug. 24, 1814, a battle was fought, in which the British were victorious, which decided

the fate of the capital. Pop. 500.

Blades, William (1824-90), printer and bibliographer, became partner in his father's printing business. His interest in the history of printing led to the publication of his Life of Caxion, 1861-63, in which, by a care ful comparison of types, he classified many Caxton editions. In his popular Enemies of Books, 1881, he discusses their foes, human and insect. A collector of old books and medals, he took an active part in public work, and was a keen supporter of the newlyformed L

Blaeber:

is known Myrtillus, and is common to hilly dists. of Britain. Unlike many of the Ericacere, the leaves are not evergreen; the berries are blue-black in colour and are made into jam.

Blaenau Festiniog, a tn. of Merionethshire, 9 m. N.E. of Portmadoc, on the L. and N.W., G.W., and Festiniog narrow gauge railways. It has exten-sive slate quarries. Pop. 7700. Blaenavon, a tn. of N.W. Mon-

with iron-11,500.

to Scottish he shale of thereby its

' blae ' or bluish colour.

Blaeu, Blaeuw, or Blauw, Jan, a Dutch cartographer, the son of W. J. B., first started in business in partnership with his brother Cornelius, who died in 1650. In 1637 he set up in business for himself in Amsterdam. work as a whole is valuable now because of the light which it casts in many places on local history. B. also pub. a series of topographical plates and views of various tas. He left three sons, of whom two carried on the business successfully till 1700. He died in 1673.

Blaeu, Blaeuw, or Blauw, Willem Janszoon (1571-1638), map-drawer and printer, was born at Alkmaar in Holland. He was a pupil of Tycho Brahe, and excelled all his predecessors in the making of terrestrial and

celestial globes.

Blagden, Sir Charles (1748-1820), physician, was born on April 17, and spent most of his life in the army medical service. He became secretary of the Royal Society in 1784, and in 1789 he was elected a correspondent of the Academie des Sciences, Paris. He did a certain amount of research work, and was also interested

in antiquarian matters. He died at Arcueil, near Paris, on March 26. Blagdon, Francis William (1778-1819), miscellaneous writer, began 1819), miscellaneous writer, began life as a newspaper boy, obtained later a secretaryship to a doctor, and acquired some acquaintance with Fr.; Ger., Spanish, and It. By turns he was publisher and author, and from about 1805 he was one of the editors of the Morning Post, then a Tory paper. As a journalist B. proved polemical, and fiercely attacked the proposal to remove Catholic dis-abilities. His use of the name of a leading Catholic divine as a pseudonym to his new ed. of Fox's Martyrs was thoroughly dishonest. A glance at the list of his works proves him to have been a mere hack writer. prepared to write on any subject.

Blagodat, a peak in the Ural Mts., Perm, Russia, 127 m. N.E. of Perm, and near Kushva. It is rich in mag-netic iron ore, and is surrounded by numerous royal iron-works. Altitude,

1260 ft.

Blagoveschensk, a tn. of E. Siberia, cap, of the Amur gov., on the Amur Scene of a dreadful massacre of Chinese civilians by Russian troops in 1900. It is the centre for the Zeya gold-mining dist., tea exportation to Russia, and cattle importation from Mongolia. It has also steam flour-mills. Founded in 1856, it has now a pop of 40,000.

Blaikie, William Garden (1820-99), Scottish divine, born at Aberdeen. For twenty-four years he was minister at Pilrig, Edinburgh (1844-68), His Allas Major, in eleven vols., is and afterwards became professor of a noteworthy work illustrated with apologetics and pastoral theology at quaint old plates and maps. The vol. New College, Edinburgh, 1863-97. ance reformer, and wrote extensively on social and theological subjects.

Blain, an old tn. in the Fr. dept. of Loire-Inférieure, situated on the R. Isac, 12 m. from St. Nazaire. There are tile and brick works. Pop. 7000.

Blaina, in Monmouthshire, 6½ m. N.W. of Pontypool, on the G.W.R. It has coal mines, iron-works, and

'tin-plate works.

Blaine, James Gillespie (1830-93), an American statesman, born at W. Brownsville, Pennsylvania, on Jan. Of Scotch-Irish parentage, he graduated at Washington College in 1847, and afterwards taught in the Military Institute, Georgetown, Kentucky, and the Institute for the Blind at Philadelphia. He then studied law in Augusta, Maine, and was editor of the Kennebec Journal and of the Porland Advertiser. He at length found his true vocation in politics, being elected to the Lower House of the state legislature in 1858 as a Republican. He remained there for four years, being Speaker the last two years. He was made chairman of the Republican state committee in 1859, and for more than twenty years from then he conducted all campaigns of the party. In 1862 he was elected to Congress where he sat for thirteen years, being Speaker of the House from 1869 to 1874; he sat for four years in the Senate. In 1881 he was appointed Senate of State was appointed Secretary of State under President Garlield; he resigned after the assassination of the latter, but held the same office later, from 1888 to 1892, under President Harri-He was descated in the Republican nominations for the presidency in 1876, 1880, 1884, and 1892. He strongly opposed the issue of paper money during the Civil War, and the immigration of Chinese. As Secretary of State he was in favour of reciprocity treaties with other nations, but adopted a firm position in the sealfisheries controversies with Great Britain. He was a ready debater, and resourceful in controversy. He wrote Twenty Years of Congress, 1884-86, two vols., and Political Discussions, 1887. He resigned on June 14, 1892, and died in the following year.

Blainville, Henri Marie Ducrotay de

(1777-1850), a French naturalist, born at Paris. After being an artist and a musician, he became a naturalist in doctor of medicine and the assistant anatomy and zoology at Paris Uni- of the College of Justice, which office versity in 1812, and a member of the he held till his death. Academy of Sciences in 1825. In 1832 | he succeeded Cuvier, on the latter's

He was an ardent social and temper-; anatomy at the Collège de France.

He died on May 1 at Paris.

Blair, Hugh (1718-1800), an author and minister, was born of Scottish parents in Edinburgh. He was parents in Edinburgh. The dis-burgh, in 1743, and in 1754 of Lady Yester's church for four years. In 1758 he served in the High Church. The year following he began to lecture on rhetoric for the Edinburgh University, and he was forthwith appointed a professor. Among his works are Lectures on Rheloric and Belles Lettres, 1783; Sermons, etc.
Blair, John (d. 1782), a chronologist, was a member of the B. family of Balthaycock, Perthshire. He was born at Edinburgh, and there also be was educated. In 1754 his Chronology and History of the World from the Creation to the Year of Christ 1753 was pub. by public subscription. In 1755 he became a fellow of the Royal Society, and in 1757 was chaplain to the Princess Dowager of Wales and tutor to the Duke of York. In 1761 he had a prebendal stall in Westminster, and the same year he was made a fellow of the Society of

Antiquaries. Blair, Robert (1593-1666), divine, graduated at Glasgow University and became a licensed preacher of the Scottish Presbyterian Church in 1616. Ordained as bishop of Down, Ireland, in 1623; he was deposed nine years later for nonconformity. When he was excommunicated in 1634, he set out for New England, but stormy weather drove the ship home again. In 1640 he came to England as one of the commissioners from the General Assembly to explain Presbyterianism to Episcopal clergy. Six years later he was elected moderator of the General Assembly, the highest office of his Church, but after the Restora-

open-air retreats.

Blair, Robert (1699-1746), a poet and Scottish minister, born at Edinburgh. In 1731 a living was bestowed upon him at Athelstaneford in E. Lothian. His principal poem is The Grave, which had some merit and dignity. He died at his manse in Athelstaneford.

tion, like other outcast Covenanters.

he risked his life by preaching in

Blair, Robert, of Avontoun (1741-1811), judge, born at Athelstaneford, was the son of a minister, and finished his education at the university of 1804, and two years later was a Edinburgh. From 1789-1806 he held the post of solicitor-general for Scotof Cuvier. He became professor of land, and in 1808 became president

Blair, Robert (d. 1828), professor of he succeeded Cuvier, on the latter's practical astronomy at Edinburgh death, as professor of comparative University from 1785 till his death, tions of mercury or antimony in hydrochloric acid, he was able to give the telescope an aperture of one-third of its focal length, without any trace of residual colour.

Blair Atholl a vil. in the Scottish co. of Perth, 30 m. N.N.W. of that city, at the confluence of the Garry and the Tilt. Blair House, the seat of the Duke of Atholl, is situated at a distance of 14 m. from the vil. Part of it dates from the 13th century.

Blair owrie, a Scottish town of Perthshire, situated on the r. b. of the R. Ericht, 20 m. N.N.E. of Perth. The prin. industry is flax-spinning and weaving, the factories for which obtain their power from the Ericht. B. is a summer resort on account of its pure air and picturesque situation. Cairns and druidical remains have

been found in the vicinity. Pop. 4000.

Blake, Robert (1599-1657), a famous Eng. parliamentarian and admiral. He was the son of a well-to-do mer-chant, and was born probably in the Sept. of the year 1599. He received a good education at Bridgewater Grammar School, and later at Wadham College, Oxford. During the years which followed his leaving college he was probably engaged in trade, and seems to have prospered in it. He entered parliament in 1640. representing the bor. of Bridgewater in the Short Parliament, with the abrupt dismissal of which parliament his career as a politician for the time being came to an end. On the outbreak of the inevitable struggle he sided with parliament and distinguished himself by his staunch resistance at Bristol against Prince Rupert, and later at Lyme Regis and at the capture of Taunton. The defence of Taunton against two royalist sieges raised his reputation. high, and in 1645 he entered parliament as its representative. Remaining an active supporter of parliament even after the execution of the king, he was appointed 'general of the seas,' and was very active in his pursuit of the royalist fleet commanded by Prince Rupert. This fleet he blockaded first in Ireland and later in Portugal, avenging himself for the this he received the thanks of parlia- Catherine Boucher, who, though of ment and a financial grant. He still humble birth, became his skilful and

is chiefly remembered for his work in optics for the improvement of the telescope. Applying himself to the question of achromatisation, he found council of State. During the Dutch that, by using lenses filled with solutinued to distinguish himself and defeated Van Tromp off Dover in the May of that year After sev. successes against the Drtch, he suffered a defeat which he avenged by defeating the Dutch admirals in a three days fight which took place in the Channel. For a short period B, was compelled by ill-health to retire from active service, but in 1654 he again came into active service. He was sent with a fleet to exact reparation from the Duke of Tuscany, the Knights of St. John of Malta, and the Moorish pirates of the N. coast of Africa. Tunis was the only place which resisted him, and Tunis suffered by being bombarded and having its fortifications destroyed. The next war in which B. played a signal part was the Spanish War. Here, after cruising round the neighbourhood of Cadiz, he attacked the Plate fleet in the harbour of Santa Cruz in Teneriffe. The action was hold and valiant, the harbour was narrow and well fortified, but the action was successful; the forts, castle, and fleet were entirely destroyed by the almost incredible attack of B. and his fleet. This was his last great action, but for it he received the thanks of parliament and the nation, and a diamond ring in testimony of his bravery. He died at sea within sight of Plymouth. He was buried with great pomp and solemnity in Westminster Abbey. His body was disinterred at the Restoration and buried in the churchyard of Margaret's.

Blake, William (1757-1827), an Eng. poet and engraver, born in London. the son of a hosier whose real name is said to have been O'Neill. His father was a disciple of Swedenborg, who had prophesied that the year 1757, the date of B.'s birth, would be the beginning of a new world. This undoubtedly had an influence upon the natural mystic tendencies of the boy, who saw visions and conversed with angelic beings from a child. He early showed a taste for art, and at the age of ten was apprenticed to Par, in the Strand, passing on to the engraver Basire, who set him to drawing monuments in old London churches, thus In Portugal, avenging immsell for the Portuguese refusal to allow him to attack the royalists by causing great attack the royalists by causing great damage and loss to the Portuguese flexis. In Nov. 1650, the royalists having been politely requested to of the early work of Stothurd, and leave Portugal, B. attacked them near Cartagena and destroyed them. For an Artagena and destroyed them. For a proposed the think he received the though of products and the storyed them.

sympathetic assistant in artistic and again, thus leaving B. no alternative literary work. His first vol. of poems, but to surrender. Many honours, inliterary work. His first vol. of poems, Poetical Sketches, appeared in 1783, but met with an indifferent reception. killen regiment of infantry, aw In 1784 he opened a printseller's the veteran on his return home, shop, having as assistant his younger brother Robert. Robert died in 1787, 85), Dean of Lincoln, was born in and it was due to his inspiration that William conceived the idea of en-graving his poems and illustrating them with his own conceptions. In 1789 he issued Songs of Innocence, the book being entirely designed and produced by hinself and his wife. In the same year appeared the Book of Thel, the first of his 'prophetic books,' which he believed were supernaturally dictated to him. These were followed by tated to him. These were followed by The Marriage of Herven and Hell, 1790; The Cales of Paradise, 1793; The Vision of the Daughters of Albion, 1793; America, 1793; Songs of Experience, 1794; Europe, 1794; The Book of Urizen, 1794; The Song of Los, 1795; The Book of Ahaniah, 1795; Jerusalem, 1804; Millon, 1804. From 1801-4 he lived at Felpham in Sussex with Hayley, for whose Life of Cowper he engraved the illustrations. After 1804 he devoted himself entirely to illustrative work, which tions. After 1804 he devoted himself entirely to illustrative work, which included engravings for Blair's Grave. 1804-5, and designs for The Book of Job, 1821; Paradise Lost, 1822; and the Divina Commedia, 1825. His artistic work reveals great natural genius, which, had it been disciplined to convention and correction would in conception and expression, would have placed him high among Eng. artists. His later work, particularly, becomes almost unintelligible. becomes almost unintelligible. The same is true of his poetry. His early writings have a wonderful charm and freshness, but his 'visionary' works almost suggest a form of insanity.

Blakeney, William, Baron (1672-1761), soldier; is said to have been the first to employ colour or drum to drill companies. Throughout Marl-browth's companies.

borough's campaigns he served as adjutant to his regiment. The enmity of Lord Verney hindered his advancement, so that he was sixty-five before he was promoted colonel. The Duke of Richmond, however, secured him the lieutenant-governorship of Stir-ling Castle in 1715, having recognised his gallant services in the Cartagena expedition of 1741. His successful defence of that eastle against the Highlanders led George II. to appoint him lieutenant-governor of Minorca As the governor never appeared, the burden of the defence of the is, against the Fr. troops under Richelieu and La Gallisonnière at the commencement of the Seven Years' War, 1756, fell entirely upon B. Ad-

cluding the command of the Enniskillen regiment of infantry, awaited

Blakesley, Joseph Williams (1808-85), Dean of Lincoln, was born in Lon-don on March 16. He was educated at St. Paul's School and Corpus Christi and Trinity Colleges, Cam-bridge, becoming fellow and tutor of bridge, becoming fellow and tutor of the latter college. He was ordained deacon in 1831, became canon of Canterbury in 1863, and dean of Lincoln in 1872. A Life of Aristotle, 1839, and an edition of Herodotus, 1852-54, were his chief works. Blakey, Robert (1795-1878), author, was born in humble circumstances at Norroth on May 18, 143 early years

Morpeth on May 18. His early years were spent in journalism. In 1838 he purchased the Newcastle Liberator, and in 1840 was bound over to keep the peace for publishing an article on the right of resisting the constitutional authorities. He sold his paper at a loss, and devoted himself to at a loss, and devoted minsen to philosophical studies, publishing his chief work, *History of the Philosophy* of Mind, in 1848. In the same year he became professor of logic and meta-physics at Queen's College, Belfast. He published sev. books on angling,

in which he was greatly interested.

Blakiston, Thomas Wright (183291), explorer, was born at Lymington, Hampshire, on Dec. 27. Joining the army in 1851, he saw service in the Crimea and elsewhere, but a few years later he turned explorer. His chief work as an explorer was done on the upper course of the Yang-tse-Kiang in 1861. From 1863 to 1884 he was a merchant in Japan, and there in terested himself in ornithology. He died in California on Oct. 15.

Blamire, Susanna (1747-94), a Cumberland protess. Was been at Cardon.

Balante, Susaina (1717-17), a Carlew Hall, near Carlisle, and she died at Carlisle. Her poems were not pub. until 1842, when they were collected, with considerable trouble, by Henry Lonsdale, M.D., and Patrick Maxwell, two gentlemen who became interested in her work. The collection, which was pub. under the title of The Poetical Works of Miss Susanna Blamire, the Muse of Cumberland, contains some

of the best of north-country lyrics. Blamire, William (1790-1862), tithe commissioner and agriculturalist, graduated at Christ Church, Oxford, and disappointed his father because he insisted on settling down at a farm near his home at Dalston, Cumberland. He became so popular with the yeomen of the county, because he was always willing that his neighbours should profit by his experiments in miral Byng, who was afterwards should profit by his experiments in executed for cowardice, came with a agric. improvements, that in 1828 he relieving squadron, but sailed away was appointed high-sheriff, and three

years later, after an exceptionally and August, and condemned in his exciting election, was returned to absence. He took refuge in Engparliament as a representative of the land, and remained there until the parliament as a representative of the Whig party. In 1836 he made a remarkable speech on the Tithe Commutation Bill, and, when it became law, was at once nominated chiefcommissioner to supervise its administration. The work of assessing the rent-charges for each parish and of apportioning those charges between various properties was further com-plicated by the lack of reliable maps, and lasted from 1836 to 1851. It was at B.'s suggestion that the ordnance survey of 1842 was undertaken. His practical and expert knowledge of land tenure also rendered his assistance invaluable to the government in preparing both the Copyhold Enfranchisement Act of 1841, and still more the Commons Enclosure Act, 1845. The principles he laid down in a High-

The principles he laid down in a highways Bill of 1846 have guided all later legislators on that subject.

Blanc, François, a Fr. financier, originally the owner of a casino in Homburg. On the expiry of his lease there he obtained, in 1861, a concession from Charles III. for the lease of the casino of Monte Carle for fifty the casino of Monte Carlo for fifty years. At his death it was taken up by the Société Anonyme des Bains de

Mer et Cercle des Etrangers.

Blanc, Jean Joseph Charles Louis (1811-82), a Fr. revolutionary politician and historian, born at Madrid on Oct. 29. He studied law at Paris, and contributed to various journals. He founded the Rerue du Progrès in 1839, and published in it an article on the 'Organisation of Labour,' the principles of which are those which guided him all his life. In this article he states his view that competition is the main evil of modern industry. For a remedy he proposes equalisation of wages, social workshops, and such measures; made possible by a recogniinterests are of less importance than the welfare of the community. In 1841 R, pub. his History of the Ten Fears 1830-40, which caused a great sensation, and did much harm to the cause of Louis Philippe. The first two volumes of the History of the French Revolution came out in 1847. On the success of the revolution of 1848, he became a member of the provisional gov., and presided over a f

report on labour of his repudiation for the disastrous ateliers nationaus

downfall of the empire. During his sojourn he completed his History of the French Revolution, in twelve vols. On his return to Paris he was in 1871 elected a member of the National Assembly. He died at Cannes on Dec. 6. Though he possessed a vivid style and a good power of re-He died at Cannes on search, his historical writings are too political in tone. His works have had a great influence in forming and influencing socialist opinion in France.

Blanc, Le, a tn. on the Creuse in the dept. Indre, France. Has woollen

manufactures, etc.

Blanc, Mont, the culminating peak in the mt. range bearing the same name, is the highest mt. in the entire chain of the Alps, and in Europe with the exception of certain peaks in the Caucasus Mts. It rises to the S. of Chamonix, in Fr. ter. and to the N. of Courmayer, which belongs to Italy: when the treaty which ceded Savoy to France was ratified in 1861 it was agreed that France should have the possession of the highest summit. The int. range named M. B. forms part of the Pennine Alps and is unequally divided between France, equally divided netween France, Italy, and Switzerland; M. B. itself rises to a height of 15,782 ft. In former days the mt. was called in some places the Montague Maudite, or simply Les Glacières, but the present name appears to have been always in local use; the name M. B. occurs in an It. document of the year 1694. Its old name, Les Glacières, had its origin in the distinguishing feature of the mt., the immense glaciers which are found on all sides of it. Among the best known may be mentioned those of Bossons and Tacounaz, on the northern slope, and those of Brenva and Minge on the southern slope. The first ascent of M. B. was made in 1786 by two Chamonix men, Jacques Balmat and Dr. Michel Paccard. In the following year Jacques Balmat and two local men again made the ascent, whilst later in 1787, the entinent Genevese naturalist, to whom a statue has been erected at Chamonix, H. B. do ain the summit

who achieved leat a week later than De Saus-These ascents were all made Chamonix, which is the usual ing-place, though in the course

and unfairly held responsible for of time ascents have been made from them. The sansculottes wished to place him at their head, and the is by way of the inn of the Grands National Guard wished to imprison Mulet, from Chamonix, to the Bosses him: he was charged with complicity in the disturbances of May, June, to the summit. Miss Isabella Straton

in Jan. 1876 was the first to make 1827, the secretaryship of the Zooan ascent in winter. The view from
the summit of the mt. is naturally
very extensive, Lyons being visible,
but owing to the great height is not
so clear as might be wished. The inn
at the Grands Mulets stands at a the loss of his wife and overwerk
height of 9909 ft., the shelter-hut at
the Bosses du Dromadaire, built in
1890 by M. Vallot, at a height of
comedian, was prompted by his delight in Shakespeare to become an
Annalsof Mont Blanc, by C.E. Mathews,
unsuccessful attempt, as a theatre
1898; and the Carle de la Chaine du
manager, made his debut at Covent 1898; and the Carle de la Chaine du Mont Blanc, 1896, by L. Kurz. Blanca Peak, estimated to be the highest peak in Colorado, U.S.A. It

is in the county of Costilla, and is among the Sangre de Cristo range.

Its altitude is 14,464 ft.

Blanch, or Blench, Holding, the name of one of the ancient feudal tenures in the law of Scotland. Under this holding the vassal has to pay to the superior only a nominal duty, as a badge of servitude, such as a penny Scots, a bunch of roses, or, as in the case of Jock Howieson, the service of a ewer and basin in order that the king may wash himself. It is now seldom adopted in the constitution of the original right of property. In the matter of casualties, etc., it is the

same as feu and charter tenure. Blanchard, Edward Litt Laman (1820-89), a miscellaneous writer, was the author of a vast number of dramas, farces, and burlesques. For thirty-seven years he wrote the Drury Lane pantomime, and he sold many plays to provincial theatres at ten

manager, made his début at Covent Garden as Bob Acres, in 1800. this theatre he was connected until 1834, except for one break when he toured in America. In his youth he was favourably compared with John Kemble, and was especially famous for his Shakespearian impersonations of Fluellen, Polonius, and Menenius, whilst Leigh Hunt enjoyed above everything his interpretation of the rôle of the Marquis de Grand-Château in the musical play, The Cabinel. De Wilde painted him as Sir Andrew Aguecheek.

Blanche Dent, an Alpine peak, rising to the W. of Zermatt and opposite to and N. of the Matterhorn. Its alt. is 14,318 ft. The ascent, which presents great difficulties, was first made by T. S. Kennedy and W.

Wigram in 1862.

Blanching, or Etiolation, is the name given to a system of culture which is resorted to by gardeners in order to render certain plants and vegetables more succulent. The action of light is a necessity to the leaves of plants in order that they may decompose carbonic acid gas, and consequently the exclusion of phays to provincial ineatres at ten action of light is a necessity to the shillings an act. As dramatic critic leaves of plants in order that they he contributed to many papers, among them being the Weekly Despatch and Daily Telegraph. From light causes changes in the metabolish 1841-5 he was in turn editor of three is no plants. Many vezetables which papers. In spite of these activities he when grown under ordinary conditional with the contribution to write two papers. found time to write two novels, count; tions are bitter, coarse, and injurious, less comic songs, and illustrated are made tender and tasteful by guides to places of interest. Hardly B. B. is usually an artificial process, any of his works have been published, though a kind of natural etiolation Blanchard, Jacques (1600-38), a may be observed in the cabbage, painter, born at Paris. He studied There are three main ways of B. painter, born at Paris. He studied There are three main ways of B. under his uncle. In 1624 he visited plants: (a) By earthing up the leaves Rome, and two years later Venice, and stems of plants. This practice is Here he studied the paintings of followed in the case of celery, asparatitian and others, producing, him-gus, etc. Celery is planted in trenches, self, a few works which brought him and earth is drawn up round the publicity. He returned to Paris and plants as they grow. (b) By type we executed numerous works. In virtue executed numerous works. In virtue the leaves with pieces of bass; thus is of these he was called the Fr. Titian. the method adopted in the case of cos 'The Descent of the Holy Spirit,' lettuces, and sometimes with endive. which hangs in Notre Dame, is con- or B. pots, which are earthenware or B. pots, which are earthenware. Blanchard, Samuel Laman (1804- vessels of a sugar-loaf shape. By this 45), journalist, was educated at St. means the light is excluded from Olave's, Southwark. After being seakale, rhubarb, etc., and no green clerk to a proctor in Doctor's Components in the leaves. The B, pot is mons, and member of a travelling often employed in France for lettuce, dramatic company, he accepted, in and in the Pyrenees celery is blanched

by this means. Cardoons are blanched | (mezzo-soprano) and her unaffected by tying up each plant into a long. oval, and compact bunch. A drainpipe filled with sand is then placed over each plant, or they are earthed up after the fashion adopted with celery. B., whilst being by no means a difficult process, is one which has very important results. By means of this process, seakale, which otherwise is uncatable if not absolutely deleterious, is rendered palatable and appetising, whilst the common dan-delion, when etiolated, is worthy of a place in a salad.

Blanc-mange, from the Fr. blanc manger, meaning 'white food,' was originally a dish composed of composed savouries-meat, eggs, etc. It is now a sweet dish made of cornflour, gelatine or isinglass, and milk.

Blanco, Antonio Guzman (1828-99), a Venezuelan soldier and a native of Caracas. The Federal revolts of 1859-63 saw him actively engaged. He became vice-president under Falcon in 1863. By a counter-revolution he triumphed over an attempt to depose him, and became president on the death of his superior. A series of reelections skilfully manipulated kept him in office till 1888.

Blanco Cape, the name of a head-land on the W. coust of Africa, in 20° 47' N. lat. and 16° 58' W. long. It lies at the extremity of a rocky ridge projecting from

of the Sahara cape) is also a and the Philippines.

Bland, Humphrey (1686-1763), general and military writer, took part in the Jacobite rebellion of 1715, and also in the rebellion of 1745, where he

whilst he was the king's

dragoon guards that he pub. his Treatise on Discipline, 1727, which served for many years as the recognised text-book on that subject. As quartermaster general at head-quarters he distinguished himself at Dettingen and Fontency during the Flanders expedition. From 1749 he was governor of Gibraltar, till he was appointed in 1753 commander-in-chief of the Scottish forces—a post which he held to his death.

Bland, Maria Theresa (1769-1838), vocalist, was the daughter of an It. Jew. Her first appearance at Drury Lane was in 1786, when she took the part of Antonio in Gretry's Richard Cour-de-Lion, and she was connected with this theatre almost continuously until 1824, when an attack of melancholia obliged her to renounce the stage. But she also sang at Vauxhall and the Haymarket. She was remarkable for the sweet quality of her voice don on Oct. 7, and was educated at the

style, whilst as an actress it was her vivacity which charmed.

Blandform Forum, the name of a parl, and municipal bor, and mrkt, tn. of Dorsetshire. It lies on the Stour. of Dorsetshire. To have the Romans near the ford called by the Romans Traisectus Belaricusis. B. was for-Trajectus Belariensis. B. was merly noted for lace. Pop. 4000.

Blandrata, Giorgio, properly Biandrata (c. 1515 - 90), Unitarian, was obliged, like others, to flee to Geneva in 1556 because of his heterodoxy, where he remained until Calvin's wrath drove him to Poland, where Unitarianism was gaining ground. Finally he took refuge in Transylvania, where, as physician to John Sigismund, the prince, he was able to spread his doctrines over a wide to spread his accounts over a sphere. Transylvanian Unitarianism was probably founded by him. Blane. Sir Gilbert (1749-1834),

physician, was born at Ayrshire, Scotland. At fourteen he went to Edinburgh University, originally to study for the church, and ultimately for a doctor's career. He took his M.D. degree at Glasgow University in 1778. Later on he left for London. and became private doctor to Lord Holdernesse. In 1779 he went out Holdernesse. In 1779 he went out to the W. Indies as physician to Admiral Rodney, and from that time he was physician to the fleet. He wrote accounts of sev. engagements and victories which he witnessed, and he received a pension from the crown. In 1781 he accompanied Rodney home, and in the same year he was admitted as Licentiate of the College of Physicians. He was famous for the reforms which he introduced while he had medical charge of the W. India fleet. He was consulted by the Home Office upon several matters. and also by the Turkey Company. He helped in drawing up the rules for the Quarantine Act of 1799.

Blanford, Henry Francis (1834-93), geologist and meteorologist, studied at the School of Mines, and at Frei-berg, Saxony. As a member of the Geological Survey of India, he classified the cretaceous strata near Trichinopoli, but failing health induced him to accept a less arduous professorship at Presidency College, Calcutta, 1862-72. His interest being diverted to the study of climates and weather, he was appointed meteorological reporter to Bengal, in which capacity he made valuable discoveries as to the cause of cyclones and also pub, many treatises dealing with the meteorology of India. In 1880 he was elected F.R.S., and in 1881 president of the Asiatic Society of Bengal. Blanford, William Thomas (1832-1906) medicited Thomas (1832as to the cause of cyclones and also

1905), geologist. He was born in Lon-

Royal School of Mines, London, and marvellously small compass. later at the Mining Academy, Freiberg, Saxony. Between 1855 and usual Eng. prices range from 4. berg, Saxony. Between 1855 and 1882 he formed part of the geological survey party to India, and later accompanied the Abyssinian Expedition in 1868. He became president of the geological section of the British Association in 1884, and has pub. Observations on the Geology and Zoology of Abyssinia, 1879; A Manual of the Geology of India, 1879; and Mammalia, 1888-91.

Blankenberghe, a small tn. on the coast of W. Flanders, 13 m. N.E. of Ostend. It has a fishing industry, and shipbuilding is carried on. best known as a summer resort, however, having made great strides in popularity of recent years. Pop. 5500.

Blankenburg, a health-resort in the Ger. principality of Schwarzburg-Rudolstadt, Thuringia, at the con-fluence of the Rinne and the Schwarza, 27 m. S.W. of Jena. It is situated in a lovely neighbourhood, and near by are the fine ruins of the castle of Greifenstein, built by the Ger. king,

Honry 1.

Blankenburg, a tn. in the Ger. duchy of Brunswick, at the foot of the Harz Mts., 12 m. S.W. from Holber-stadt by rail. It has a castle, a museum of antiquities, several fine churches, and pine-needle baths. From the Teufelsmauer (the devil's wall), which is in the neighbourhood, fine views can be observed. The town, which is a noted health resort, has a pop. of 11,000.

Blanket, a woollen or in some cases cotton fabric used as a covering on beds, etc. Whilst all good Bs. are made wholly of wool, many Eng. blankets of interior quality are made of cotton warp and woollen weft. In these Bs. the threads of the woollen yarns are raised to the face of the fabric in a loose, soft mat so as to hide the cotton threads. The process by which this is done is called 'teazling,' and it is effected by means of steel brushes called 'teazles,' which are fixed in 'gigs,' or brushing machines, and brush up the threads on the face of the B. The principal varieties of Fig. Be, are the Witney. varieties of Eng. Bs. are the Witney, the Kersey, the Yorkshire, the Bath, and the Bury, the last-named being more like ordinary wool cloth. The Scotch Bs. are always made wholly of wool, and are more durable, though sometimes not so comfortable, as the Eng. The prin. Scottish mills are in Ayrshire, Berwickshire, and at Markinch in Fifeshire. At the Philadelphia Exhibition of 1876 some exceedingly fine American Bs. were shown. Very delicate Bs. come from Mysore, in India, being made of such fine fabric that they can be rolled up into a a Fr. revolutionary politician, was

price of these Bs. is about £30; the usual Eng. prices range from 4s. to £2.

Blanketeers, the nickname given to 5000 Lancashire operatives who met in St. Peter's Field, near Man-chester, on March 10, 1817. They chester, on March 10, 1817. They determined to march to London and see the prince regent in order to obtain redress of their grievances. The Habeas Corpus Act was suspended and the leaders imprisoned, whilst the bulk of the operatives As a result of the meeting, however, the spokesmen had an interview with the minister, and some reforms were made. The name B. was given to them because each carried a blanket for camping out.

Blank Verse, or verse without rhyme, is, especially in its decasylrhyme, is, especially in us decasyl-lable form, one of the two outstand-ing features of English poetry, alli-teration being the other. In its wider sense the term B. V. signifies all verse in which the rhymes are 'blank,' that is to say, lacking, but the term has come to have a more restricted significance, being generrestricted significance, being generally applied to verse consisting of tensyllable iambic lines. The English language runs more easily in the iambic metre than in any other, and the line of five iambuses bulks largely in English B. V., in fact this form is the general medium of our epic and dramatic poetry. This length of line has patrally been chosen for this largely. has naturally been chosen for this purpose, for the eight-syllable line is too short for really dramatic effects to be obtained, whilst, on the other hand, the twelve-syllable line is apt to drag and become monotonous if it lacks the aid of rhyme. Longfellow has in two well-known pieces tested his power of writing B.V. of both the long and the short line, his popular Hiawatha being in eight-syllable lines and Evangeline

in sixteen. See POETRY AND VERSE. Blanqui, Jérome Adolphe (1798-1854), Fr. economist, was born at Nice on Nov. 21. He was a schoolmaster at Paris when he was caused to study economics by reading the works of J. B. Say, whose pupil and assistant he became. He was appointed to a professorship of industrial economy and of history at the Conservatory of Arts and Crafts, upon Say's recommendation, and succeeded the latter as professor of political economy in 1833. In 1838 he became a member of the Academy of Moral and Political Sciences. He was indefati-gable in research, and had a most thorough knowledge of the working classes of France. His most important work is his History of Political Economy in Europe, 1838.
Blanqui, Louis Auguste (1805-81),

born at Pujet-Théniers, near Nice. He | B. suliala is cooked with butter and studied both law and medicine before eaten by Turkish women, as they taking up a political carcer. He was decorated for his services in the revolution of 1830, hut continuing to preach his Republican doctrines during the reign of Louis Philippe, he was often imprisoned. He was con-demned to death in 1840, but the sentence was commuted to imprisonment for life. He was leader of the extreme socialist party after the revolution of 1848, but was sentenced to ten years' imprisonment in 1849, and again in 1861, but escaped and was abroad till after the downfall of the empire, when he returned and founded La Patrie en Danger. He was condemned to death in 1871 for his part in the doings of the '31st Oct.;' a few days afterwards he was made a member of the insurgent gov. He was elected deputy for Sebuste in Asia Minor, was martyred Bordeaux in 1879, but the election in the reign of Diocletian on Feb. 3, was invalid owing to his being in 316. His day is still kept as a festival prison; he was, however, set free. He by the Roman Catholics, and by the died as the result of an stroke on Jan. 1. He was

Blantyre, the chief town of Nyassaland Protectorate, British Central Africa. It is situated at a height of 3000 ft. above the sca-level, and is 300 m. N.N.W. of Chinde. It is the headquarters of missionary societies, and is a station on the African Trans-Continental telegraph system. It has

labour.

Blantyre (Gaelic, warm retreat), a parish of Lanarkshire, Scotland, a few miles S.E. of Glasgow. The chief towns in it are High B. and Low B. High B. has in the neighbourhood Calderwood Castle, in Rothen Calderwater, a very picturesque building. Coal-mining is the chief industry. It has a pop. of 3000. Low B. is chiefly noteworthy for the fact that both David Livingstone and his brother Charles were born there, and worked as piecers in the local cotton mill. The remains of B. priory, founded late in the 13th century, are to be seen near by on the left bank of the Clyde. Coal

black beetles which numbers more than 100 species. They are dark, wingless, and slow in movement; of nocturnal habits, they feed on dead vegetable matter, and possess the power of ejecting an acrid fluid with a - several

necies is

the harbinger of death. The species offence does not consist in an honest

He consider it an aid to the attainment of adiposity, which is regarded as a beauty.

Blarney, a small tn. in co. Cork. Ireland, 5 m. N.W. of Cork. It contains an old eastle which is built on the site of a still more ancient one built in 1446 by Cormae McCarthy. The noted 'B. stone, 'which is supposed to render the person who kisses it as persuasive as the serpent, is situated about 20 ft. from the summit. feat of kissing it requires some nerve, as the person essaying it has to be held by the legs and swing face downwards to reach the stone.

Blasewitz, a vil. of Saxony, 5 m. to the S.S.E. of Dresden, on the Elbe.

Its pop. is 1577.

Blasius, or Blaise, St., Bishop of Sebaste in Asia Minor, was martyred astern Church on Feb. 11.

tron saint of woolcombers,

his fanatical devotion to co.... was said to be torn by as is evidenced by the fact that he their irons, and he is associated with spent half his life in prison.

Blasphemy, besides being used to denote insulting and opprobrious speech in general, denotes also speech of that kind offered to God or persons or objects esteemed sacred. Among the canonists the definition of B. is made to include the denying of God, or the asserting of anything to be God which is not God. Blackstone describes B. at common law as comprising 'the denying the being or providence of God, contumelious respectives of the statement of the state a Presbyterian church built by native proaches of our Saviour Christ, pro fane scotling at the Holy Scripture, or exposing it to contempt and ridicule. The punishment is the and imprisonment. The 9 Will. III. c. 35 enacts that if any person educated in or having made profession of the Christian religion should by writing, printing, preaching, teaching, or advised speaking deny any one of the persons of the Holy Trinity to be God, or shall assert that there are more Gods than one, or shall deny the Christian religion to be true, or the mining and a little cotton-spinning Holy Scripture to be of are carried on. Pop. 2000.

Blaps, the name of a genus of offence be rendered incapable. divine authority, he shall upon the first offence be rendered incapable of being a guardian or executor or of taking a legacy or deed of gift, and suffer three years' imprisonment. According to the decision in R. v. Carlisle the statute is cumulative in operation and in principle merely declaratory of the common law, although apostasy is constituted by the statute a dishyard timet substantive offence included in beetle, which used to be considered as B. But it has been held that the

Christian religion, but rather in a wilful intention to pervert, insult, and mislead others by means of licentions and contumelious abuse applied to sacred subjects. The disputes of the learned upon particular controverted points of religion are not punished as B. (R. v. Woolston). Whether these latter dieta be sound common law or not, they are in harmony with the trend of public opinion against putting in active operation the law of B. in all its rigour.' Smith's Act, 1813, relieves 'persons denying as therein mentioned' the doctrine of the Holy Trinity. Publications which assail in an indecent and malicious spirit Christianity or the Scriptures in language calculated and intended to shock the feelings and outrage the belief of mankind, are regarded as blusphemous libels (R. v. Bradlaugh). The law is rarely put in force. In 1911 Harry Boulter, a tailor, who was in the habit of speaking on Streatham Common on the subject of Atheism, and was prosecuted for conduct provoking a breach of the peace, and ordered to be of good behaviour for twelve months or go to prison for three months. The chief commissioner of police elected in that case to proceed as for a threatened breach of the peace, and not for an actual commission of breach or for B. At the Leeds Winter Assizes of 1912 two men, Stewart, an analytical chemist, and John William Gott, a purveyor, were sentenced to three and four months imprisonment respectively for B. In answer to questions put in the House of Commons the Home Secretary agreed that punishment was for the offensive method the men adopted in expressing their views, and because they knew those methods would lead to a breach of the peace.

Blass, Friedrich (1843-1907). Ger. classical scholar, born at Osnabrück, Hanover, professor at Kiel University from 1881 to 1892, and at Halle University after 1892. He ed. numerous of Eschines, Andocides, Antiphon, Demostheres, Dinarchus, Hyperides, Isocrates, and Lycurgus, and contributed largely to philological papers. His other works include Die attische Beredsamkeit, 1887-98; Die Aus-sprache des Griechischen, 1888; Plutarch, Tiberius, und Gaius Gracchus, Grammatik der neulestamentlichen Sprache, 1896; Philotogy of the Gospels, 1898; Bacchylidis Carmina,

1898. Blasting, the method of shattering or loosening masses of mineral by the discharge of an explosive. It is used both in excavation or tunnelling. where the material has no particular

questioning of the truths of the value, and in mining, where the material has to be recovered, often in a certain state of coherence. In B. for the purpose of loosening obstructing rock, a large charge of gun-cotton or nitro-glycerine, or a series of charges round a central core is used, the effect being to disturb the rock for a certain distance around a given point, the débris being then removed by ordinary pick or navvy work. In B. for minerals of economic value it is usually advisable to loosen the material along the natural lines of cleavage. Small charges are therefore used, and the material can then be removed in bulk without the admixture of foreign substances and the over-pulverisation that a shattering charge would cause. To effect the explosion a hole is drilled by hand or machinery to a depth of some feet, a cartridge of cylindrical form is inserted with the wire terminals hang-ing loose, the hole is 'tamped' or plugged up with clay or mud, the terminals connected with wires attached to a buttery, and the battery carried to a safe distance off before the circuit is completed by a switch on the battery box.

Blasting Gelatine, see GELATINE. Blastoderm, the first mass of primitive cells which forms round the

protoplasm in the ovum.

Blastoids (Gk. βλαστός, germ, bud, fos, form) are a class of fossil echinoderms which lived in the late Palæozoic time and are found in the Upper Silurian to the Carboniferous. They differ from most echinoderms in having no arms, and they have eight to ten groups of hydrospires on the radial and inter-radial plates. The calyx resembles a bud; hence The genus Pentremites is the name. The genus Pentremites is typical of the B., and about twenty other genera have been discovered. See K. A. von Zittel's Text-book of Paleontology, vol. i., 1900; and R. E. Etheridge and P. H. Carpenter's Etheridge and P. H. Carpenter's Catalogue of the Blastoidea in the Geological Department of the British Museum, 1886.

Blatchford, Robert (b. 1851), the son of an actor, born at Maidstone on March 17. After being an apprentice to the brush-making, a soldier in the Dublin Fusiliers, and a clerk at Northwich, he drifted into journalism, and was connected with the Sunday Chronicle from 1885 to 1891. In the latter year he started the Clarion, and, chiefly under the nom de plume of 'Nunquam,' contributed many articles of a socialistic and agnostic character, which attracted wide attention. He has done more to popularise Socialism among British working people than any of his contemporaries. The purity of his English and the

simplicity and genial humour of his and there are collieries and iron style have made his writings popular foundries. even among those who do not share his economic and religious views. His published works include: Merrie England, 1894; Tommy Atkins, 1896; Britain for the British, 1902; God and My Neighbour, 1903; and Not Guilty, a Plea for the Bottom Dog, 1905.

Blattidæ, a family of insects of the order Orthoptera, which includes the cockroaches, often improperly called black-beetles. There is a large number of species found in all lands as active and extremely voracious insects. The head is hidden by the thorax, and the antennæ are long and thread-like. The common cockroach of English kitchens is Blatta (or Periplaneta) orientalis, said to have come

originally from Asia.

Blavatsky, Helena Petrovna (1831-91) (née Halm), usually known as 'Madame B.,' was born at Ekaterinoslav, Russia, on July 31 (O.S.). She was married at the age of seventen years, but left her husband after three months, and was wont in later years to refer to the marriage as nominal only. She travelled in Asia, S. America, Africa, and India, and on returning from her travels in 1888 she declared that she had gone through an initiation into esoteric Buddhism, and could perform supernatural feats by the aid of 'Mahatmas' or her spiritual tutors. In 1875 she founded the Theosophical Society, of which the objects are: 1. To form a nucleus of the Universal Brotherhood of Humanity without dis-tinction of race, creed, sex, caste, or colour. 2. To encourage the study of comparative religion, philosophy, and 3. To investigate unexscience. plained laws of nature and the powers latent in man. Her books, which include The Secret Doctrine, 1888; Isis Unreiled, 1877; and Key to See THEOSOPHY.

Blaydon a tn. in Durham, on the coat-of-a R. Tyne, 44 m.S.W. of Newcastle, with Oxford. which it is connected by a bridge. It same charge occur in a field, their has manufs, of bricks and bottles; position is understood to be as follows lead is found in the neighbourhood, unless otherwise stated; two are

Pop. 21,000.

Blaye (the anct. Blavia), a Fr. tn. in the dept. of Gironde, on the r. b. of the Gironde, 20 m. N.N.W. of Bordeaux. It has a trade in wine, brandy, and oil. Pop. 5500.

Blayney, Andrew Thomas, Baron (1770-1834), lieutenant-general, was gazetted major of the 89th regiment, part of which he had raised himself in 1794. He joined the Duke of York, who was fighting in Flanders, and experienced all the perils and misery of the retreat through Holland, 1794-5, but in many of the encounters he had gained signal distinction. After assisting Lord Cornwallis in terrorising the poor Irish peasantry, 1798, he helped in the reduction of Malta. He was with General Whitelocke at the regrettable capitulation of Buenos Ayres. During the Peninsular War he made a disastrous descent on Malaga. In his Narrative of a forced Journey through Spain and France as a Prisoner of War, 1810-14, he vividly describes his own experiences and the

state of the two countries. Blazon and Blazonry (Ger. blasca, blow), heraldic terms which originated with the custom of blowing a trumpet to announce a knight's entrance into the lists at a tournament; the knight's cont-of-arms was explained in heraldic phraseology by the heralds who called his name. Thus blazon and blazonry came to mean the art of describing a coat-of-arms in such a way that any one who possessed a technical knowledge could accurately portray it from the description. The following are the prin. rules of blazonry. The field must be named first; it may be of one or more tinetures, whose arrangement again may vary. The charges follow in order of importance and distance from the field; the name of the charge is first given, then in succession the number, Theosophy, 1891, are a curious position, and tineture. Any ordinary, mixture of magical and Cabbalistic or a diminutive of an ordinary, is love, Theosophy, and more or less named first, except a chief, bordure, esoteric Buddhism. There seems no or canton, which are usually named doubt that she had resort to deceit last. The precedence is generally in order to prove her claims, as was taken by a bordure or centon of these shown by the Society for Psychical three, but when a bordure surrounds Research in 1884. She died in London, a chief the bordure is named last of all; when a chief covers a bordure the Blavet River, the name of a coastal reverse is the case, and when a bend river of France, which rises in the surmounts a chief it is named last. Landeret Hills and flows into the If the prin, charge is not in the centre Atlantic at Port Louis. It crosses the of the field its position must be dependently and the Scoriff rays flower countries. B. swamp, and the Scorff river flows scribed; 'quarterly gules and or, in into it at Lorient. The length of its first quarter a star (mullet) argent, course is about 87 m.

Blaydon a tn. in Durham, on the coat-of-arms of De Vere, Earl of When two or more of the

same tincture, this is given after the last one. The rules of blazonry have for their object explicituess and brevity, but periphrasis is resorted to

in order to avoid repetition. Bleaching, a process which involves the decomposition of colouring matportant step in the preparation of was most generally used was B. many textiles for the market, partly powder, which was introduced in because the whiteness is esteemed on 1799 by Charles Tennant, of Glasgow. account of its association with clean-liness, and, in the case of coloured whence, paradoxically, the name Holland for unbleached linen. The Dutch process consisted of steeping the name washed. crude potashes, after which it was treated with butter-milk for some weeks. It was then spread out upon the grass in the sunshine and kept moistened. The whole process occupied several months, and naturally

placed 'in pale,' one over the other; B. process, as the souring took at three in the form of a triangle on its most a day, and as this stage occurred apex. When an ordinary or its about five or six times during the diminutive surmounts another charge recurrent process, the time saved it is not named first. The names of amounted to several weeks. The next the tinctures are always given after creat improvement was the application charges to which they refer, but if the charges to which they refer, but if the charges to which they refer, but if the charges are of the several consecutive charges are of the of this gas had been investigated by same tincture, this is given after the Scheele in 1774, and in 1785 Berthollast one. The rules of blazonry have let suggested its use for the purpose for their object explicitness and of breaking down colouring matters James Watt. who was in textiles. acquainted with Berthollet, introduced the process into Scotland shortly afterwards, and it soon made ter in any material, which therefore its way also among the Lancashire tends to become white. It is an im-manufacturers. The form in which it

account of its association with cleanliness, and, in the case of coloured
goods, because it is necessary to get a
quite neutral ground before the best
effects of dyeing and colour printing
can be obtained. The B. effects of the
sun's rays has been observed from the
earliest times, and sunlight still plays
an important part in many branches
of the industry. Certain chemicals are
also employed, such as chlorine,
hydrogen peroxide, and sulphur diocide. The first two operate as
oxidising agents and the last as a
reducing agent, liberating hydrogen
from water. B. was undoubtedly
practised amongst the early Egyptians, and the whiteness of their
linens was greatly esteemed by other
nations. The Phomicians also possessed the art, and were acquainted
also with the cleansing effect of
potashes, or the alkalis produced
from the ashes of burnt plants. In
Greece, Italy, and Persia white textiles were in great demand, but the
mode of preparation probably did not
go further than exposure to sunlight
when the cloth was in a moist condition. In Great Britain it was customary up to the 18th century to send
linen to Holland to be bleached.

Cotlon blexching.—Plaw cotton contains as impurities vegetable wax,
colouring matter, seed husas, and
other organic substances up to 5 per
eent. by weight of the material. When
it has passed through the loom it
it has passed through the loom it Cotton blenching .- Raw cotton contains as impurities vegetable wax, tomary up to the 18th century to send goods are finally treated with dilute linen to Holland to be bleached, sulphuric acid ('white sour') and

Singeing is required to produce a smooth surface, and consists of burnthe linen for several days in a lye of ing off the projecting fibres by passing the material through a gas flaine or over a hot plate. Gas singeing is used for goods which have an uneven surface, so that all the fibres come in contact with the flame, though, of course, only for a very short time. In pled several months, and naturally course, only for a very short time. In entailed the work being done in the plate singeing the pieces, sewn to-summer months. This method was gether, are drawn rapidly over two followed at bleach fields established arched copper plates heated by furin Scotland about 1730, but an impacts beneath. Roller singeing conprovement was instituted by Dr. sists of allowing the sewn strip to pasterial forms of Edinburgh in 1756, round a roller which revolves in the who surgested the use of very dilute reverse direction. The roller is heated sulphuric acid instead of butter-milk, by a flame being drawn through the The result was a great shortening of inside of the cylinder and the advan-The result was a great shortening of inside of the cylinder, and the advan-

grey wash is carried on in a dashwheel washing machine, a cylindrical box of four divisions into which the pieces are put. The revolving of the box causes the material to dash through the water against the sides of the machine, so that the required solution is effectively carried out. The lime boil is accomplished by passing the strip of pieces through milk of lime and into a bowking kier which is a strongly constructed cylinder capable of holding 3500 lbs. of cotton. The milk of lime is forced through the material by high-pressure steam to the bottom of the cylinder. The kiers are usually worked in pairs, so that the liquid can be forced from one kier to the other alternately. The lime decomposes the fatty substances in the material forming insoluble soaps which remain in the fabric after the subsequent washing. The grey sour, or treatment with sulphuric acid, dissolves out these substances, and after washing, the material is ready for treatment with chloride of lime, or chemicking in a washing-machine. The object of the while sour, or final treatment with sulphuric acid, is to dissolve out the lime in the B. powder so as to allow the chlorine to complete ! its B. action.

Linen bleaching.—The same principles are utilised in linen B. as in cotton B., but the process is much more tedious, and contains many repetitions of stages, together with the employment of 'crofting,' or the exposure of the moistened material to the action of sunlight. This prolongation of the process is due to the heavy percentage (20 per cent.) of impurity in the fibre, much of it very obstinate material to deal with. The fabric is, moreover, so close in texture and yet so liable to deterioration from the use of drastic reagents, that the solutions employed can only take effect by constant repetition. As the grassing ' of the linen is a prominent feature in the B. process, the industry can only be carried on away from large towns, where the discolouring substances in the air would undo the work achieved by the long exposure

to light. Wool bleaching.—Wool, as received by the manufacturer, is usually in a very impure state, the unnecessary substances amounting to about 30 per cent. These consist of a natural wax coating the fibres, and known as 'yolk,' other exudations soluble in water and known as 'suint,' and the dirt which has accumulated since the last washing. The wool is treated

tage of the process is that the cotton is continuously brought in contact with a freshly heated surface. The grey wash is carried on in a dashwheel washing machine, a cylindrical box of four divisions into which the pieces are put. The revolving of the box causes the material to dash through the water against the sides of

solution (sulphurous acid).

Silk bleachina.—Raw silk consists of the fibre proper and a gum-like substance, soricine.

This latter amounts to about 20 per cent, by weight, and has to be removed by treatment with a strong soap solution. It is afterwards boiled in a weaker soap solution, rinsed, and dried. The B. is often carried out, as in the case of wool, by the use of sulphurous acid. Latterly, however, for tussore and fairly coarse silk, hydrogen peroxide is used.

Other material .- Jule is only partially bleached, as its fibres are easily disintegrated. Hypochlorite of soda is the usual B. agent. Hemp may also be half-bleached by the use of B. powder or hypochlorite of seda. Strue used for making hats is bleached with peroxide of hydrogen while the straw is in the form of platt. As considerable discoloration takes place during the slaping of hats, a further bleach is required, and is accomplished by treatment with sulphurous acid or hydrogen peroxide as before. Wood is blenched by being immersed in an alkaline solution of hydrogen peroxide. Paper is made of a variety of materials, including esparto grass, wood, straw, rags, etc. These are usually bleached when they are half made up by treatment with B. powder. It is necessary, however, in the case of paper to thoroughly remove the chlorine by subsequent treatment with a substance with a strong affinity for chloring, as hypo-

sulphate of lime. Bleaching Powder, a bleaching agent and disinfectant obtained by bleaching the action of chlorine on slaked lime. It is manufactured on a large scale in alkali-works from the hydrochloric acid obtained during the production of salt-cake (see ALEALI). Chlorine is evolved from the hydrochloric acid by the action of manganese dioxide, and afterwards passed into chambers containing dry slaked lime. days are allowed to clapse for the absorption of the chlorine, which ultimately forms about 35 per cent. of the whole. The resulting product a homogeneous white powder, which absorbs moisture from the air and decomposes when stored in close vessels. It dissolves in twenty parts

dirt which has accumulated since the of water. last washing. The wool is treated Bleak, a small fresh-water fish with soap solution, which dissolves out belonging to the Cyprinide, in the

and occurs in large shoals. It forms, of salt. a great part of the diet of such fish as the pike, trout, etc. Artificial

Blechnum, a genus of fern belong-ing to the order Polypodiaceæ. There is only one species found in Britain, and it has been seen in N. Africa and N. America also. Its popular name is the hard fern or northern fern, and its technical name B. borealc or Lomaria; snicant.

Bleda, king of the Huns, brother of the famous Attila. was The two reigned together from 433 to 445,

of arteries, veins, or capillaries. There may also be a general oozing from congested mucous surfaces, although on fisure in the walls of the vessels can be detected. Arterial B. is characterised by jerky movement and the bright scarlet colour of the fluid; in venous B. the fluid is dark purple and comes in a continuous stream: capillary B. is shown by a bright red colour and a gentle flow. The methods of stopping B. for first-aid purposes involve the elevation of the wounded part, the application of cold, and pressure by fingers or bandages at suitable points. If the B. is arterial. pressure must be applied to the artery between the heart and the wound, and if the artery is some distance below the surface, a severe ligature dangerous, and should be treated without waiting for the arrival of the surgeon. B. as a remedial measure is seldom resorted to nowadays as compared with its continual use centuries The means adopted are venesection, cupping, and leeching. Venesection, or the cutting of a vein, is used to relieve the general engorgement of the pulmonary vessels after a chest injury and in other cases of suffocation. To relieve the blood pressure a vein in the forearm is opened. Cupping means withdrawing blood by means of the reduced air pressure in a heated cup placed over a puncture in the skin. It is not now used for extensive inflammation, but

Physostomi div. of bony fishes, in which the air-bladder opens into the gullet. The common B., Alburnus bucidus, is a fish with a protruding jaw and an elongated body, generally stop the B. They may either be from 5 to 7 in. in length. It is common in the European rivers N. of the Alps, induced to do so by the application and occurs in large sheals. It forms of saft.

Bleek, Friedrich (1793-1859), a Ger. biblical critic, was born at Ahrensbok pearls are manufactured from the in Holstein, on July 4. He studied coating of its scales. theology at Kiel and Berlin. He became a tutor at the latter university in 1818, and was made professor of theology in 1823. In 1829 he removed to Bonn, where he was also professor of theology, and where he remained till his death. His chief work is his commentary on the Hebrews, which is considered to be one of the first exegetical works of the 19th century. His Introduction to the Holy Scriptures (1860-2) has gone through seveds., and has been trans. into Eng., when Bleda died.

Bleeding, a discharge of blood as have the Lectures on the Apocarypse occasioned by the rupture or cutting (1875). Among his other works may occasioned by the rupture or cutting (1875). There be mentioned his commentaries on the Philemon and the Colossians, the Philemon and Ephesians, the Gospels, etc. All his works are marked by clear judgment supported by unpretentious but real

learning.

Bleek, Wilhelm (1827-75), a Ger.

Bleek, with the standard of the s 3. He joined

in 1854, but was ounged to recurn owing to illhealth. Joined the Bishop of Colenso in Natal in 1855, and spent some time studying the Kaffirs. He settled down at Cape Town and was made keeper of the Grey Library in 1861. Here he pursued his philological investiga-tions till his death on Aug. 17, 1875. He was instrumental in assigning the great Bantu family to its proper is necessary. Venous B. is met by ethnographical position, and was expressure directly above the wound by ceedingly well learned in the philology a pad kept in position by bandages, and folk-lore of the Bushmen and Internal B. is best treated by the Hottentots. His works include a patient lying down and wet cloths Handbook of African. Australian, and being laid over the affected part. Polynesian Photology (3 vols. 1858-Severe hemorrhage is in any case 63), and his unfinished Comparative Grammar of South African Languages.

Bleiberg, a vil. in the Austrian duchy of Carinthia, 8 m. W. of Villach. It is situated in the valley of the Drave, near the celebrated Bleiberg (Lead Mountain), Pop. 900.

Bleibtreu, Georg (182-12), a German battle-painter, born at Xanten, Rhenish Prussia. Pupil of Düsseldorf Andemsi Prussa. Tapa of Dassadori Academy, 1843-48, also later under Hildebrandt. His first success was with scenes from the Danish war. His battle-scenes from the wars of Frederick the Great and the German war of deliverance were also famous. In 1858 he went to Berlin; 1866 accompanied the Prussian army in the suite of Prince Frederick Charles: 1870 in

that of the Crown Prince; 1869 member of Berlin Academy. Among his works are: Battles of Kolding and Flensburg, 1852; Battle of Gross-beeren on the Katzbach, 1857; 'Battles of Aspern, Crefeld, storming Grimma Gate in Leipzig,' 1858: 'Epi-sode from the Battle of Waterloo,' 1858; 'Crossing to Alsen, Battle of Königgrätz' (Berlin National Gal-lery); 'Surrender of Napoleon after Sedan,' 'Meeting of Moltke and Wimpffen,' 'Napoleon's Flight after Waterloo,' 1878; 'The Summons in Harding St. (1881) (Berlin Arsenal). Sce Brockhaus, iii., 156; Müller, 56; Rosenberg, Berl. Malersch, 157 (1879). Bleibtreu, Karl (b. 1859), Ger. au-

thor, born at Berlin; educated there and in London; entered journalistic life, and ed. sev. papers. His work includes poetry, such as Lyrisches Tage-buch, 1885; Lieder aus Tirol, 1885; Komische Lieder, 1890; dramas, such as Byron's Geheimnis, 1901, and Dic Freimaurer, 1902, and literary criti-cism, notably Geschichteder Englischen

Litteratur, 1887.

Blekinge, the name of a province of Sweden, which is washed by the Baltic Sea on the E. and on the S. sides. It is one of the most beautiful, and one of the most interesting from an historical point of view, in Sweden, It belonged to Denmark, with the exception of 1332-60, till 1648, when it was united to Sweden. The chief town is Carlskrona. The area of B. is 1300 sq. m. Pop. 160,000.

Blench Holding, see BLANCH HOLD-

Blende (Ger. blenden, to dazzle). the name given to a number of

'n

in the Fr. dept. of Yonne, situated 29 m. W.S.W. of Auxerre. It was here

that Turenne gained the victory over the Prince de Condé in the year 1652. Blenheim (Ger. Blindheim) is a small vil. in the Ger. kingdom of Bavaria on the l. b. of the Danube, a short distance below Hochstadt. It is only remarkable as being the scene of the defeat of

August 13, 1 the Duke of

the Austrian The Fr. and Bavarians lost between thirty and forty thousand killed. wounded, and prisoners. Blenheim is 800. Pop. of

Blenheim, the name of the cap. of the Marlborough dist. of New Zea-land, situated on the Wacran R., near

the coast, 20 m. S. of Picton by rail.
Blenheim Dog, a variety of miniature spaniel much like the King

Charles, but it has shorter ears and differs from it in colouring, being pun white with brown and red markings It received its name from the estate o the Duke of Marlborough, where it was first bred.

Blenheim Park, the seat of the Duke of Marlborough, near Wood stock. Oxfordshire. It was presented

stock, which also formed part of the reward. The £500,000 voted for the presentation was found to be insufficient. Its architect was Sir John Vanbrugh, whose powers are amply proclaimed by the grandeur of the massive building, the length of whose front is 348 ft. The valuable collections of paintings and jewels and the fine library were sold by aucton between 1875 and 1886. Of the pictures the National Gallery purpictures the National Gallery purchased, among others, the 'Ansidel Madonna' by Raphael for £70,000. The grounds are adorned by a triumphal arch and a column, 130 ft. high, supporting a statue of Marborough. The area of the park is 2700 ac., and its boundaries 12 m. long. The trees are said to be arranged on a plan similar to the placing of Marborough's men at Blenheim. The R. Glyme widens into an artificial lake, and is spanned into an artificial lake, and is spanned by a large bridge.

Blenkinsop, John (1783-1831), a forcrunner of Stephenson in the development of the locomotive, was born near Leeds. His locomotive was patented in 1811, its chief feature being a cog-wheel that fitted into a toothed rail. At a test at Hunslot, Leeds, on June 24, 1812, it covered 11 m. in 23 minutes, 'without the slightest accident.' B. died at Leeds.

Blennerhasset, Charlotte, Lady, Ger. biographerand essayist, born Countess Leyden at Munich, 1843. Married Sir Rowland B., 1870: studied at Munich University, winning title 'Doctor honoris causa,' 1898. She won a honoris causa, 1898. She won a name for her biographics of France of Stael, 1887-89; and Tallegrand. Among her essays, many of which appeared in Deutsche Rundschau. may be mentioned : George Eliot, Taine, Queen Victoria, D'Annunzio, Tennyson (1899); Die Elhik des modernen Romans (in Cosmopolis, 1896). Marie \cdot

1903; Blennius, the chief genus of the acanthopterygious fishes of the family Blennide. They are littoral fishes found in all temperate and tropical seas in great variety; they are of small size and live in shoals.

plane, which is one of the smallest Bletchley, a par, and township of in existence. It takes up no more N.E. Buckinghamshire, 45 m. N.W. space with wings folded than a of London. It has a pop. of 2046. medium-sized motor-car. B.'s flight Bletting is the first stage in the deacross Eng. Channel (Calais to Dover, composition of ripe fruits, when blds, 31 m., in 37 min.) in his monoplane, or rotten spots, first appear on them. July 25, 1909, marked an epoch in Some fruits, such as the mediar, are aviation and in the history of 20th kept until they reach this stage to century. He was the first to cross improve their flavour. the Channel by aeroplane, and has his won international fame by daring feats.

Bles, Hendrik (1480-c.1521), Flemish artist, born at Bouvignes. Is thought to have studied at Antwerp under Joachim Patenier, whose style he imitural subjects introduced, and indalen. Other works by him are at Berlin, the Uffizi Gallery, Florence,

the Pinacothek, Munich, and Venice. Blessington, Marguerite, Countess of (1789-1849). She was a native of Knockbut, Tipperary. Her father was Edmund Power, a small landowner. She was compelled to marry Captain Farmer when she was only fourteen. His worthlessness caused her to leave him after three months. Not long after his death she married Charles Gardiner. Earl of Blessington,

blennies are distinguished by having Continent, and while at Genoa made the ventral placed before the pectoral the acquaintance of many distingin, and it consists of one to three soft guished men, among them Byron. rays. B. occilerate, butterfly blenny, This acquaintance ripened into a is a British species. Is a British species.

Blennorrhœa, an excessive discharge of mucus.

Blenny, a fish belonging to the became the centre of all the most family Blennidæ. It is characterised eminent contributors to music, art, by a long, somewhat cylindrical and literature. With the fortune left body, generally smooth, though sometimes covered with minute scales, and ton, at the princely Gore House. more often slimy. Along the back for From 1822 an acquaintanceship with the greater part are dorsal fins, some the Count d'Orsay had gradually times furnished with protruding assumed a more intimate interspinous rays. There are few British course, and later Society refused to specimens. Over each eye there is recognise her on account of their often a tentacle. Their appetite is car-'irregular union. This circumstance, nivorous and ferceious. Clambering and a vast accumulation of unpayover sea-weed and similar obstacles able debts, forced them to abandon over sea-weed and similar obstacles able debts, forced them to abandon is accomplished by means of their vericle fins. They travel in small shoals tricle fins. They travel in small shoals their responsibilities, and they crossed to Paris in 1849. During the previous twenty years she had written a number of novels of no literary value. She died of apoplexy on June 4. Her heads which inhabit the shores of N. regions. They belong to the effect in lessening the condemnatory cottidae family of acanthopterygious of the sand are of no food value. B. rillosus is a native of the Aleutian Is. Bleriot, Louis, Fr. aviator, born at Cambrai, 1872. Pilot of Aero Club de France, and inventor of B. monoplane, which is one of the smallest in existence. It takes up no more N.E. Buckinghamshire, 45 m. N.W.

Blewfields, see Bluefields River. Blicher, Steen Steensen (1782-1848), ovelist and poet of Denmark, born Oct. 11, at Viborg. He was educated at Copenhagen. In 1819 he became pastor at Thorning, and in 1826 at Frandrup Luthers. Joachim Patenier, whose style he indi-tated. His manner is hard and dry, he died at Spendrup. Between but his figures well drawn. He gener-the years 1807-9 he trans. Ossian, ally painted landscapes, with scrip-and became widely known as a con-On March 26 sequence, but the appearance of stad of signing his name painted an Sneeklokken (1825) and Jydske owl in one corner. He is represented in the National Gallery, London, by a still greater. The publication of 'Christ on the Cross' and a 'Mag-Nationalnoveller produced an effect dalen.' Other works by him are at more immediate than all his previous works. As a poet he is essentially national, and his works are full of tenderness and philosophic thought.

Blickling Homilies, so called because MS. is preserved at Blickling Hall, Norfolk, were possibly due to re-ligious revival and foundation of monasteries about A.D. 959. are nineteen in number. some incomve him after three months. plete, others only fragments, the after his death she married earlier ones being regular sermons, ardiner. Earl of Blessington, the later largely of a narrative charin 1822 she toured the acter based on legendary sources. Their style marks the transition be-species, and is a native of Guinea. It tween the prose of Ælfred and that is cultivated for its fruit, the aril of Ælfric. St. Paul's Vision bears the seed is pulpy, and has a pleasant some resemblance to the passage in Beowulf describing the groves near Grendel's home, but similar descriptions occur in many poems of the period. The homilies may be by various authors, and written at different periods, but probably they belong to the close of the 10th century. They refer to the belief that the year 1000 was to be the end of the world. Morris has ed. them for Early Eng. Text Society, 1874-80. See Earle's A.S. Literulure, 1884; Cambridge History of English Literature (vol. i.); Wilker's Grundriss zur Geschichte der A.S. Literatur.

Blida, a tn. of Algeria connected with Algiers by rail, and 32 m. S.W. of that tn. It possesses prolific orange groves, while other products include cotton, raisins, grain, tobacco, and cork-wood. Earthquake visita-tions occurred in 1828 and 1867. Its pop. in 1906 was 16,866.

Bligh, William (1754-1817). English admiral, born of a good old Cornish family. His name is usually connected with the mutiny of the Bounty. He sailed with Cook on his second voyage as sailing master, and during this voyage bread fruit was discovered at Tahiti; from this dis-covery he received his nick-name Bread-fruit Bligh. After seeing some active service he was sent back in command of the Bounty to introduce command of the Bolanty to introduce the bread fruit plant into the W. Indies from Tahiti. He stayed at Tahiti for some six months, and during that time his men became so demoralised that on sailing for the W. Indies his crew mutinled, and he and his officers were cust adrift. After a voyage of over 4000 m. in an area, beat they managed to reach open boat they managed to reach Timor. On his return to England in 1790 he was appointed to the Providence, and managed at last to carry out his original project. He was present at the mutiny at the Nore in 1797, and later fought under at Camperdown, being Duncan present also and specially mentioned at the Battle of Copenhagen. In 1805 he was appointed governor of New S. Wales, but his severity led to mutiny, and for two years he was imprisoned. The officer who led the revolt was later brought home and eashiered. In 1811 he returned to England and was made first a rear-admiral, and later a vice-admiral. He died in London after a courageous

but somewhat stormy career.

Blighia, a genus of plants named after Captain William Bligh, R.N., belonging to the order Sapindacee.

B. sapida, the akee-tree, is the sole but somewhat stormy career.

prevalence of print by gasli prolific causes of immuness. Hereuten, though it has a tendency to develop itself in

the seed is pulpy, and has a pleasant subacid flavour.

Blight, a disease common to cultivated plants, particularly cereals and grasses. The term has been used to cover many forms of disease, irrespective of their cause, and is specially applied to those ailments which selze the plant before maturity,

Blimbing, otherwise Bilimbi, a tree indigenous to the E. Indies. It is a member of the Oxalidacere. Its refreshing, wholesome fruit justifies in the its extensive cultivation

Antilles. Blindness and causes of Blind. blindness.—The B., who number a greater percentage of the total population than might be supposed, are so often subjected to a life of dependence and poverty that the civilised world acclaims no less the progress made by medical science in the prevention of the affliction than the advance in the development of special systems of education putting the B. in the way of earning a livelihood for themselves. It is calculated that in countries lying within the temperate zones about one person in every 1000 is B., while in warmer climates the proportion is much higher; in India it is about one in 600, while in Egypt, till recent years, it was no less than one in 50. In the United Kingdom, where the census of 1901 shows 25,317 B, persons, medical science concurs in the opinion that one-third at least of the cases could by proper precautionary measures have been prevented. The term 'blindness' indicates absolute loss of vision, and does not, in strict medical parlance, include that partial loss of vision or dimness which is This latter known as amaurosis. disease is a weakness of the eyes not proceeding from the cornea or the interior of the eye, but arising from diseases which, though they do ultimately paralyse the optic nerve, are not at first directly connected with it. Amaurosis chiefly afflicts the aged, but may be the consequence of strabismus or squint.

Causes of blindness -- Blindness in many cases is congenital, but results in a much greater degree from disease. accident, and old age. The principal inducing diseases are purulent ophthalmia, scarlet fover, cataract, scrofula, small-pox, measles, and amau-rosis. Many business occupations have an injurious effect upon the eyes, and before

families. ever, abundantly demonstrates the imcreasing years. important fact that blindness, like insanity, often results from interfor the first time. marriages of first cousins, of uncles and nicces, and other relatives. Loss of vision from small-pox is now, owing to vaccination, not often met Without a doubt the great with. majority of cases of blindness owe their origin to infantile purulent ophthalmia or inflammation of the eye, arising from inoculation at birth with some hurtful foreign substance. Medical opinion lays the greatest emphasis on the preventability of blindness from this cause, and attributes that consequence mainly to neglect and dirt. Pathologically, ophthalmia of infancy is a contagious germ disease in the vast majority of cases absolutely curable by injecting silver salt, usually silver nitrate, into the eyes of a new-horn infant. In the U.S.A., as a result of the confirmation of these facts, ophthalmia neonatorum, or inflammation of the eyes of the new-born, is a disease the existence of which must be notified at once to the proper authorities. Trachoma is also a cause of blindness. This disease, which is one of the many forms of conjunctivitis, or inflammation of the conjunctiva of the eye, is charac-terised by the 'granular 'appearance of the inner surface of the eyelids, due to the presence of granular semi-transparent bodies, known as tra-choma, or follicular granulations. Want of cleanliness is a factor in the propagation of this disease, which is commonly to be found in the eye-lide of reserve and live boylets. lids of persons who live herded together under insanitary conditions of living, e.g. in camps or ill-regulated schools. Soldiers were formerly great sufferers, and it is recorded that hardly any of the soldiers of Napoleon's army in Egypt escaped the disease, the insanitary camp life being accentuated by the dust and dryness of the air. Glaucoma, or atrophy of the optic nerve, accounts for many cases of blindness. The disease is cases of blindness. The disease is one in 1285. It is noteworthy that in named from the pupil presenting a Holland in 1869 the proportion was clouded aspect of a greenish colour. one to 2247; Denmark, in 1870, one Most cases can be treated surgically to 1428; Germany, in 1885, one to if the operation be performed suffi- 1150; and France. in 1883, one to ciently early. In the more chronic 1180; the figures in each case being forms, however, the operation will the most recent available. On the seldom do more than preserve what whole this country compares favour-amount of sight is still retained. Sym-ably enough with France and Ger-

Medical experience, how-la rule the defect is diminished with

Census of the blind .- In 1851, when for the first time in this country inquiry was made into the census of the B., they were found to number one in 979 in Great Britain and Ireland. In 1861 there were 19,352 B. in England 1861 there were 19,32 D. in Engana and Wales, or one B. person to every 1037 persons; in Scotland, 2820, or one to 1086; and in Ireland, 6879, or one to 643; total, 29,248, or one to 994. The very high average in Ireland was ascertained to be due to the several outbreaks of epidemic ophthalmia in that country during the 150 years preceding 1870 and the effects of the great 'epidemic con-stitution' so marked by the failure of the potato and the ensuing famines during the years 1845-52. In the during the years 1845-52. In the thirteen years from 1849 to 1861 the cases of ophthalmia in the workhouses, according to the Irish Poor Law Complesioner Law Commissioners, were little short of 200,000. For the same period the total B. in U.S.A. was only 12.631, or one in 2499, a remarkable figure when we reflect that the average in the temperate regions of the globe is something like one in 1300. The States' immunity from small-pox when that disease was rife in this country, before the days of the vac-cination laws, will do no more than account for a part of this great dis-parity between ourselves and the U.S.A. There has, however, been a hopeful decrease in the proportion of B. to seeing persons in every census, though the rate of decrease is by no means constant, and this decrease is due to a wider knowledge of the nature, means of prevention, and treatment of purulent or other forms of ophthalmia or inflammation. 1871 the total was 21,590, i.e. 951 per million of population, or one in 1052; in 1881, 22,832, i.e. 879 per million of population, or one in 1138; in 1891, 23,467, i.e. 809 per million of population, or one in 1236; in 1901, 25,317, i.e. 778 per million of population, or amount of sight is still retained. Sym-lably enough with France and Gerpathetic ophthalmia, or inflammation many, but not with Holland, Denof an eye due to the injury of the mark, the U.S.A., and other counties of total blindness, if the injured suggested that the difference between eye be not promptly removed. Myothalmost the three great European nations and pla, or short sight, produced generally the U.S.A. is to be sought in the by too great convexity of the cornea greater proportion of persons working due to over use of the eyes on minute in dangerous occupations to total popolicets, may have serious results. As ultion than is the case in America.

doubt that no organised scientific effort for the relief of the B. ever manifested itself in the shape of responsible institutions either in this country or elsewhere. It seems to have been assumed on all hands that the condition of the B. was without hope, and as a class they were never taken in hand and taught to make themselves less dependent for their whole future on the charity of others than the nature of their afflictions actually warranted. The first regularly organised establishment for the relief of the B. was the Hôpital Im-périal des Quinze-Vingts in Paris, founded by St. Louis in 1260 as au asylum for 300 of his soldiers who had lost their sight in the E. This institution, its capacity trebled, is still in existence, but no instruction was ever imparted to its B. inmates. The first successful effort in systematic instruc-tion was made in Paris by Valentin Hauy, whose disgust, it is said, was so excited by the public contunely to which the more ribald elements of the Parisian common folk subjected the pauper B., that he set about devising means for rendering them, as a class, less helpless. Inspired by the success of the celebrated Abbé de L'Epée in the education of the deaf and dumb, Hauy believed that equally happy results could be effected for the B., and it seems soon to have occurred to him that the most feasible method of instruction was by means of letters formed and printed in relief. The first outcome of Haüy's efforts were, in 1784, a book for the B., and the foundation, under the patronage of the Philanthropic Society, of the Printed des Louves Avangles Institut des Jeunes Aveugles, Paris, organised under the immediate In 1786 charge of Hauy himself. Hauygave an exhibition of the attainments of his twenty-four pupils before St. Peter founding city. In . digent B.

institutior tions of a B. man named Edward Rushton. This school was speedily followed in 1793 by the Royal Blind Asylum in Edinburgh. After that the establishment of institutions for the B. occurs at intervals averaging no more than two or three years all over the United Kingdom up to 1879. The majority of them, however, are regarded primarily as asylums and not pendence. The misplaced kindness of educational establishments at all. friends accentuates the natural apathy

Institutions for the blind.—Before There has been a similar progress in the 18th century there can be little the U.S.A., but on a more scientific the U.S.A., but on a more scientific scale, for in that country every state in the Union has long since made some provision for the education of In 1869 was founded in Engits B. land the British and Foreign Blind Association, to which body and in a lesser degree, to the Royal Normal College of Music, Norwood, and the Worcester College for the B. sons of gentlemen, are due to a considerable extent the improvement and greater harmony in the prevalent methods of education of the blind.

Later development of institutions and associations.—In England and Wales in 1907 there were twenty-four resident schools and over forty workshops for the B. In addition there were forty-six home teaching societies who send teachers to visit the B, in their homes and lend embossed books. The National Lending Library, founded in 1882, holds now over 5000 vols. in various types for the B. There are also thirty-six pension societies, chief among which are the Royal Blind Pension Society, Society for Granting Annuities to the Poor Adult Blind, National Blind Relief Society, Clothworkers' and Cordwainers' Companies, Hetherington's Charity, and others, while the Gardner Trust administers the income of a bequest of £300,000 left by a Mr. Henry Gardner in 1879 for the relief of the blind.

Education and training of the blind.—The great majority of the B. in this or any country belongs to the poorer classes to whom life is an uphill struggle under the most favourable circumstances. But when overweighted in the race by the loss of sight, they must fail unless some special provision be made to facilitate their acquisition of knowledge, and to diminish the difficulties which lie in the way of making them a self-sustaining class. The B. can best be the king and royal family at Ver-sailles, when the institution was placed on a more permanent footing by the royal bounty. Later, he was invited by the Russian Emperor to best education of its kind in the trade r profession they can best follow. It an outworn fallacy to suppose that

y a sort of law of compensation the ther senses of the B. are keener than lose of the seeing. The senses of nearing and touch must be developed before they can be any real substitute for sight, and the earlier such development is begun, the better for the future welfare of the B. person. Nor again does the normal environ-ment of the B. tend in any way to promote the cultivation of an active self-reliance or foster a spirit of indeof the youthful B. Added to which, the vitality of the B. appears from reliable actuarial calculations to be below that of the average seeing person, and though it cannot be asserted that this lack of energy, and not the want of sight, causes so many failures, yet there is this element of truth in the assertion, that under proper physical and mental training a very high proportion of the B. can become either wholly or partly independent of the help of others for their livelihood. The spirit of the times has for the last forty years been entirely opposed to the purely charitable as against the economic treatment of the B., and to the idea of continually increasing the size of B. asylums and thereby making ever larger demands on the public funds. For those B. who for various reasons can never maintain themselves fully—and very few who have become B. late in life can ever do so—there will always be room for charity: but it is now recognised that most of the young B. ought to receive such an education as will fit them to become useful members of England, however, lagged far behind America and other countries in the practical recognition of this economic truth, and even now our legislation is extremely defective in that it makes no provision for other than elementary education. Indeed, in the sense that everything is left to individual effort England is still a long way behind America and other countries in the organised training of the B., and in this respect differs even from its own colonies. An efficient system of education for the B. must be founded on an adequate course of physical development. With care the B. children can soon adapt themselves without undue risk to a number of the modes of recreation of seeing children, e.g. swimming, jumping, swings, skittle-alleys, rollerskating, skipping, rowing, and so forth. A sound school curriculum should provide for classes graded to meet the requirements of various ages. When the B. child is about fourteen years of age some opinion can be formed as to whether its aptitude lies in the direction of mechanical work or handicrafts, or whether it has ability in the direction of general business or even something higher. Experience shows that the chief vocations of the B.comprise organists, teachers of music (America chiefly), organ and piano tuners, basket-working, making of brushes and brooms,

women, knitting, sewing, crocheting, and the making of fancy baskets and brushes. The opening up of a musical education as a field for the B. has in some countries, notably in America, been attended with great success. gland up to 1869 vstem of reading

В., a system peculiarly favourable for musical England's notation. may explain backwardness in this respect. However, the introduction into this country of the Braille system (see below), resulted in the establishment in 1872 at Norwood of the Royal Normal College and Academy of Academy of The college Music for the Blind. The college embraces three distinct depts.: (1) General education; (2) Science and practice of music; and (3) Pianoforte Special care is bestowed on tuning. the intellectual training of the pupils, experience having proved that what-ever the talent of the B. pupil for music, he will only become self-sup-porting where his musical training has had an adequate foundation in general education. All branches of musical instruction are given, and special attention is paid to the art of teaching. In the pianoforte tuning dept., pupils are trained who have passed the age at which they might have become qualified for profitable employment in other depts. A pro-longed course of careful training is, however, as necessary in this dept. as in the purely musical, to enable the pupil to become self-supporting. In France B. organists, tuners, and teachers have been turned out in considerable numbers by the Institution Impériale des Jeunes Aveugles, and become independent men, many exercising highly lucrative professions. In the U.S.A., where the lot of the B. is socially immeasurably superior to what it would be in England or even France, large numbers of B. persons become notable scholars otable scholars and mu-It is recognised in that sicians. country, however, that whether in the training of the B. for a musical or any other professional career, or for competition in the labour world, first-rate masters, appliances, and institutions are required, and as liberal an education as that provided by the state for seeing people, whether it costs more per capita or not. Practically every country in Europe, except Great Britain, and even the Eng. colonies, provide for the education of the B. by taxation. In regard to schools generally, it is conceded that boarding the making of new and remaking of schools are more to be desired than old hedding, mat-making, cork-fender day schools, home influence being making, chair-caning, mattress-mak-ing, wire-making, and various forms education; for the B. child is generally of plaiting and, more especially for treated at home differently from the

seeing children: a similar objection be developed by assiduous practice, applies to the mingling in one class of B. and seeing children, the result degree by other than those who. often being that the memory of the B. child is developed at the expense of its other faculties. The habit of uniting for avowed economic reasons the B. with the deaf and dumb in certain asylums is unsound policy. The acquaintances ripen into intimacy with dire results, apart from the fact that the treatment for the two classes of afflicted should obviously be differentiated. Recreation and healthful surroundings are a sine qua non, but more especially in the case of those B. children whose vitality, whether congenitally or owing to neglect, want of food, etc., is lower than that of the average child.

Types and appliances.—The idea of enabling the B. to read by touch is an old one, which would naturally suggest itself to all who desired to assist them in the attainment of knowledge. The first attempts at its practical application were made as far back as the 16th century, but were not attended by any great measure of The pioneer in the art of stamping characters on paper in relief was Hauy, who, in printing his first book in 1784, used the italic form of the Rom. letter. In 1832 Sir Charles Lowther, obtaining some types of this kind from France, printed some parts of the Bible with his own hand. The use of the Rom. character, however, is attended with certain disadvantages, and a long controversy between its advocates and those of Fry's type. stenographic, and point systems, has resulted in the abandonment of the Rom. characters in favour either of purely arbitrary signs or of signs which in certain cases retain the crude forms of Rom. capitals. For one thing Frere phonetic system the signs rethe Rom. characters were not sufficiently distinct to the touch to be easily legible by its aid alone. Hence, in 1834, Gall acter founde

Rom. capitals of curves. A and others, especially in America, invented and employed other modifications but all of tions of the Rom. letters; but all of them, including Dr. Howe's use of small English letters without capitals and with angles for curves, are open to the same objection. They do not fulfil to the finger the promise they make to the eye. It is only with great make to the eye. It is only with great difficulty that they are mastered by those who become B. in middle life. Doubtless a few of the B., chiefly among those congenitally B. or B. from early childhood, have developed an extraordinary sensibility of touch; but acuteness of touch is not natural to the B. by any means, and can only

being exempt from necessity for manual labour, can keep the skin of the finger tips in a condition of softness and delicacy. But even when due allowance is made for increased delicacy of touch, it may still be taken as a fact that the Rom. character, in all its modifications, is read by the B. with difficulty, and in proof of this the experience of American States schools may be appealed to. According to annual reports furnished to the States legislatures in 1868, among the pupils at those schools where a Roman letter is used, and after five years' instruction, one-third read fluently, one-third imperfectly, spelling the words letter by letter, and one-third failed entirely. At the Missouri Institution, on the other hand, where Braille's dotted character was emplayed than third of the applicated. ployed, two-thirds of the pupils could read fluently, and one-third imper-fectly, while no failures were recorded. We have had the advantage of no similar statistics in England, but as indicated above, the same practical difficulties have been felt. Dr. Fry's alphabet of ordinary capitals without their small strokes, invented in 1832. Taylor's and Alston's books in Fry's type in 1836, were the last words in Roman. In 1838 commences in England the era of arbitrary signs. Some of these are frankly shorthandphonetic or stenographic. Others consist of rudimentary Rom. characters, or combinations of mere symbols and rudimentary Rom, capitals. The Lucas type is based upon ordinary shorthand, the letters of the being used who

present vocal sounds. Both systems render the books printed in them cheaper and less bulky than those in which common type is used, but they present great and often insurmountable difficulties to the uneducated adult B. Dr. Moon, himself a B. man, devised in 1847 a system in which many of the Rom. letters are retained in simplified or rudimentary forms, while those which are more compli-cated are replaced by Frere's simple linear signs, any infringement of the latter's system being avoided by making the purely arbitrary signs selected represent different letters to those which they are made to represent by Frere. His method has the great recommendation of being very easy to acquire; but the books are bulky, which makes reading a slow process, and renders the cost of production very great. In Frere's system the lines are read alternately from left to

right and from right to left, the finger on reaching the end of the first line traversing a vertical arc to the left end or beginning of the ne t line, the letters of which are all reversed. Moon borrows the reversal of the alternate line from Frere, but does not reverse the letters themselves. Moon's type is still largely used by home teaching societies, being, from its simplicity, more adapted to the requirements of the dull or uneducated than that which is known as the point system. But practically all the other is line' types have disappeared before the advance of the 'point' or dotted system. In the transition period, Association, was invented by Louis

Blind

A	B	C	D	E	F e :	G	H	I : •	J
K	L	M ::	N	0	р • :	Q	R	S ::	T
U ::	V ::	X ::	Y :::	<i>Z</i>	and	for	of	the	with
ch	gh • :	sh	th • •	wh • •	ed	er	ou • • • •	ow • •	{will

BRAILLE DOTTED SYSTEM

however, there was much confusion, any B. person, who had painfully acquired the power of reading one yetom, having to repeat his labour in root form of Braille's character is order to master another, so as to be furnished by six dots arranged in able to buy the very limited literature in embossed type on the market. In 1869, however, was formed the British and Foreign Blind Association, which included among its members men of the highest ability for all the first ten letters, the two and social standing. Five of the six lower dots are omitted altogether, gentlemen who at that time formed the executive council were totally B., upper pairs or by some further omisthe executive council were totally B., upper pairs or by some further omisand the sixth was partially so. All six sions from them. The next ten letters were able to read by touch at least are formed by adding the left-hand three systems, and were pledged to, or pecuniarily interested in, none. The combinations, e.g. B is represented association, after extensive and persecurity in the system of the lower pair to the former combinations, e.g. B is represented by adding the left-hand three systems, and were pledged to, or pecuniarily interested in, none. The system of the lower pair to the former or pecuniarily interested in, none. The system of the lower pair to the former or pecuniarily interested in, none. The system of the lower pair to the former or pecuniarily interested in, none. The system of the lower pair to the former or pecuniarily interested in, none. The system of the lower pair to the former or pecuniarily interested in, none. The system of the lower pair to the former or pecuniarily interested in, none. The system of the lower pair to the former or pecuniarily interested in, none. The system of the lower pair to the former or pecuniarily interested in, none. The system of the lower pair to the former or pecuniarily interested in, none. The system of the lower pair to the former or pecuniarily interested in, none. The system of the lower pair to the former or pecuniarily interested in the lower pair to the former or pecuniarily interested in the lower pair to the former or pecuniarily interested in the lower pair to the former or pecuniarily interested in the lower pair to the former or pecuniarily interested in the lower pair to the former or pecuniarily interested in the lower pair to the former or pecuniarily interested in the lower pair to the former or pecuniarily interested in the lower pair to the former or pecuniarily interested in the lower pair to the former or pecuniarily interested in the lower pair to the former or pecuniarily interested in the lower pair to the lower pair to

simpler forms when standing alone represent stops, and when following a particular prefix, figures. In all there are sixty-three possible com-binations. The same system is applied to music, and the introduction into this country of a good system of embossed musical notation lessened the great difference previously existing between the prospects of B. musical pupils in this country, and those of America or France. In America there exist at least two modifications of the point type, viz. the New York point and American Braille, in which the most frequently recurring letters, e.g. E, S, T, A, are represented by the least number of dots. For working by this method a simple frame with a plate of zinc or other metal has been perfected. The paper is kept in position over the plate by strips of other metal, and the worker with his stilet makes the necessary indentations in the paper through the perforations in the securing bands of metal, which, besides holding the paper firm, guide the writer's hand. When a line is completed, the bands are placed lower, and the writer proceeds as before. The superintendent of the Jacksonville School for the B., a Mr. F. Hall, has recently brought out a Braille typewriter, and stereotype plate-maker, by which thin copper plates can be embossed and the requisite number of copies printed. An auto- Ger. freedom. His works are political, matic Braille typewriter has been brought out in Germany, while a Mr. Wayne of Birmingham has con-structed a cheaper Braille writer. In addition to these and kindred inventions, many boards have been made to facilitate the working out by the B. of arithmetical problems, the most up-to-date of which is that introduced by the late Rev. W. Taylor, containing a number of star-shaped below into which the children and the days of the star shaped of the work of the children and the days of the children and the days of the children and the ch holes, into which the student can fit a square pin in eight different positions. The board is effective also for algebra. notableblind nersons.

SomeJohn, King of Bohemia, who died fighting valiantly; Ziska, the one-eyed. who lost his remaining eye in battle but continued to fight for Bohemia; Scapinelli, the B. philologist, and one of the most accomplished scholars of his day; Count de Pagan, who studied fortification and geometry; Dr. Nicholas Saunderson, lecturer on optics, and professor of mathematics in Cambridge University; Sir John Fielding, half-brother of the novelist, and chief magistrate of Bow Street Police Court; Husber, an eminent translation in her Eng. renderings of naturalist and inventor of glass beelives; James Holman, who is said to Strauss' The Old Failh and Nec, 1873-4, and The Journal of Muric thave travelled without an attendant Baskkirtseff, 1890. At her death she through a large portion of Europe.

quire both dots of the lower pair. The penetrated 5000 m. into Russian simpler forms when standing alone dominions, performed a voyage round the world, and actually on one occasion saved the ship by taking the helm; John Milton, the poet; Dr. William Moon, inventor of the Moon type; Henry Fawcett, professor of political economytat Cambridge University and postmaster general; Louis Braille, inventor of the Braille type: Rev. Geo. Matheson, preacher and writer of the Church of Scotland; Prescott, the American historian: Alexander Rodenbach, Belgian states. man; Leonard Euler, astronomer.

Bibliography.—E. Fuchs, Causes and Prevention, 1885; B. G. Johns, Blind People, 1867; W. H. Levy. Blindness etc. 1872

Blindness, etc., 1872. Blind, Karl (1826-1907), author and revolutionist of Germany, was born at Mannheim, and educated for the law at Heidelberg. He took a sufficiently active part in the rising in S. Germany of 1848 to be condemned to imprisonment for eight but his liberation by the people during his journey to Mainz prevented the execution of the Subsequently during the inevitable reaction he found himself compelled to fly first to Belgium and later to seek safety in England, where revolutionary activities tinued. T ment hac his effort

and died in 1896.

Blind, Mathilde (1841-96), poetess.

adopted the name of her steplather. Karl B., who played a conspicuous part in the Baden insurrection of 1848-9. At different periods she travelled in Switzerland, Egypt, and Italy, and it was her visits to Scotland that inspired her to write two long poems, The Prophecy of St. Oran, 1881, and The Heather on Fire, 1886. which is a passionate outery against the Highland evictions. In her epic, The Ascent of Man, 1888, she handles so vast a theme as Darwin's theory of evolution. As a writer of biography she is remembered for her George Eliot, 1883, and Madame Roland, 1886, whilst she showed her gift for College, Cambridge, effort that mars her more ambitious works is overcome in her sonnets by her broad humanity.

Blindage is a screen constructed of earth and timber, or other available materials, which soldiers build to proteet themselves against the enemy's

fire when they are in a trench.

Blind Spot, that part of the retina or internal nervous coating of the eyeball where the optic nerve pierces The nerve through from the rear. fibres not having spread out at this

the central vault.

Blind-worm, or slow-worm, a wormlike creature usually about 12 in. long, of which length half is tail. Internal traces of limbs indicate its relation to the lizard, particularly those of the skink family. Its nostrils are provided with shields, while its eyes are protected by scaly and movable eyelids. It possesses long and pointed teeth which incline backwards. The colour depends upon the age and varies a great deal accordingly, but usually the adult is brown above and black underneath, while its young are often causes a contraction of the muscles resulting in a rigidity so tense that endeavours to bend the creature often cause breakage. They hibernate during winter in groups of about a score.

Bliss, Frederick Jones, American archeologist and explorer, b. in Syria, 1859. Graduated at Amherst College and Union Theological Seminary, New York. B. pursued independent researches in Syria; 1890-1900 became Palestine Exploration explorer to Fund, conducting excavations at Tellel-Hesy (Lachish) and Jerusalem, discovering there the site of a city. B.

The conscious Bross lecturer, 1908. His works more ambitious include A Mound of Many Cities; her sonnets by Excavations at Jerusalem, 1894-7; Excavations in Palestine.

Bliss, Philip (1787-1857), antiquary, was born at Chipping Sodbury, Glos.

He held various university posts at Oxford, including that of registrar of the university, 1824-53. His best known work is his ed. of Anthony à Wood's Athenæ Oxoniensis and Fasti.

Blister, a vesicle or bladder formed by the exudation of serous fluid between the epidermis and true skin, fibres not having spread out at this tween the epidermis and true skin, point, light falling thereon conveys in no impression; so that if a small object is so placed that the rays of application of a remedial agent called light from it fall only upon this area a vesicant or B. Cantharides, or it is not perceived as being in the Spanish fly, is the chief remedy employed as a B., and is usually applied in the form of a plaster compounded another name for the triforium of a church. It is directly opposed to the electrory. It consists of a gallery spread upon adhesive plaster; the situated immediately above the nave liquid and collodion of cantharides act situated immediately above the nave liquid and collodion of cantharides act of a basilica or church. In some buildings the B. extends for the entire able. The vesicant causes a rapid length of the aisle, while sometimes local inflammation of the skin, swellit is nothing more than a narrow ing eventually occurs, and serum gallery against the roof of the nave, appears in from six to nine hours. It serves the purpose of a flying The effect is to withdraw the blood buttress to counteract the thrust of from neighbouring parts and thus reduce inflammation, although if the B. be too near the affected part inflammation may be increased. It is also found that quite distant parts are affected, probably because the stimu-lus is conveyed by the peripheral nerves to centres from which it is radiated to other nerves. In this way the surgeons of former times empirically discovered that certain areas of the skin were sympathetically connected with certain organs of the body, though probably the benefit obtained by blistering was slight. For neuralgia, a B. may be placed over the spine, from which the painwhite with a black stripe running over the spine, from which the pain-along the centre of the back. They ful nerves proceed, but not over the inhabit bushes and feed upon earth-seat of pain. For some forms of worms and slugs. Their bite is quite headache, a B. on the nape of the harmless. Timidity is the chief trait
of their character, and their fright B. over the heart in the early stages of acute rheumatism has a decidedly beneficial effect. A small B., whether produced artificially or not, is best left alone after being covered with greased lint, but if the quantity of serum is considerable, a small puncture will usually cause the gradual trickling away of the fluid. Bs. should in no case be applied to the very young or very old, or to person-suffering from acute kidney diseases. Blister-beetle is the name applied

to sev. species of coleopterous insects of the family Cantharidae. They frequently possess an irritant which raises blisters if applied to the skin: has discovered much about pre-use of this property has been made in Christian pottery. Ely lecturer, 1903; medicine. The best known species is Cantharis (or Lytta) vesicatoria, the Spanish fly, or common B., a native of Southern Europe, which occurs rarely in England. It is about three quarters of an inch in length, and of a bright green colour; the legs and antenne are bluish-black. It feeds on the leaves of trees and lays its eggs in a hole in the ground, where the maggot-like larvæ live until they pupate. See Canthariario.

Blitum, now merged in Chenopodium, is a genus of plants belonging to the Chenopodiaceæ. Two species, B. capitatum and B. virgatum, are known as strawberry-blite, and grow

in S. Europe.

Blitung, or Blitong, see BILLITON.
Blizard, Sir William (1743-1835),
doctor, was born in Surrey. He was
apprenticed to a surgeon at Mortlake,
after which he studied at the London
Hospital. In 1780 he became surgeon
at the hospital, and helped to found
a medical school there in 1785. He
lectured at the school on physiology
and anatomy. He became an F.R.S.
in 1787, and president of the College
of Surgeons. He wrote sev. pamphlets,
including Suggestions for the Improvement of Hospitals. At one time he
attended daily at a coffee-house in
Cornhill for consultations.

Blizzard, a peculiarly fierce storm characterised by an icy bitting wind and fine snow. They are often fatal to man and beast, especially in America. The suddenness of their commencement and the rapidity of the consequent fall of temp., together with the blinding snow, make them anticipated with dread by all who have once experienced them. Probably the most disastrous B. recorded is that of 1888 which was experienced in Dakota, Kansas, and Texas. So spontaneous was its attack that field labourers died on their way to shelter, quite as aused by the

memorable occasior severity of the cold the R. Colorado was frozen to a thickness of one foot. They are caused by the climatic conditions following the passage of cyclones across the Eastern American states. The term probably owes its origin to the usual noise occasioned by the violence of the wind.

Bloch, Jean de or Blicch, Ivan Stanislavovich (1536-1901), Russo-Polish financier, economist, railway contractor and writer. Son of humble Jewish parents, educated at Industrial High School of Warsaw. B. was administrator, under gov. appointment, of the whole railway system connecting the Black Sea and Baltic, He promoted an industrial movement.

1875 B. pub. Russian Railroads, for which he was awarded a first-class medal at Paris Geographical Exhibition. He planned the establishment of a system of pension funds for pensioning railroad employees. With Vishnegradski he wrote a treatise on the subject; also in French, Calculs servants des Bases pour des Caisses des Retraites. He frequently engaged in scientific and philanthropic enterprises among the poor; 1877 B. pub. a series of essays on Russia's economic condition, intended to calm public apprehensions as to Russia's financial embarrassments; 1878 appeared his Influence of Railways on the Economic Condition of Russia (gold medal, Paris Exposition). Member of 'committee of scholars' of Ministry of Finances: 1882 pub. Finances of Russia in 19th Century. Other economic works were Statistics of the Kingdom of Poland, and various articles in the periodicals Biblioteka Warzawska and Ateneum. His Les Ouvrages Statistico-Econo-miques, 1875-1900, is an abstract of a much larger work dealing partly with Jewish fortunes in Europe. He vehemently defends their cause and denounces their abominable treatment and the trumped-up charges brought against them. B. is perhaps best known generally as a propagandist of universal peace. As such he became famous by articles in Fr., Ger., and Eng. periodicals, his war-and-peace museum at Lucerne, and The War of the Future, 1898 (Eng. translation, Is War now Impossible? 1899). This work was said to have inspired Nicholas II. to issue his 'peace' de-claration, resulting in the Hague Conference, 1899. In it he tries to prove that under present conditions war must become practically impossible; for as, owing to various causes, wellern wars must last long, they I result in starvation of both

result in Starvation of both revolution and destruction of the state. His theories did not prevent the S. African and Russon-lapanese wars of recent years, but his scheme was to settle all international conflicts by arbitration. His pamphlet Lord Roberts's Campaign and its Consequences suggested the blockhouse scheme by which S. Africa was finally reduced. B. retired from business life before his death, devating himself to science and literature. See Angell's Great Illusion, 1916; Vengerov, Kritiko-Biograficheski Slovar, vol. iii., 1892; Hans Delbrück in P.

He promoted an industrial movement in Poland, becoming head of the hagen. He studied at Copenhagen

gaining a scholarship for Rome 1859. He first won a reputation for nature studies, especially those drawn from Jutland and Zcaland, and for humorous pictures. His chief works are, however, historical. He won a first-class medal and the decoration of the Legion of Honour at the Universal Exhibition, 1878. In 1883 B. hecame professor in Copenhagen Academy, and professor at the school of Beaux Arts. He excelled in por-traying the semi-comic side of Italian convent-life, but sometimes treated sacred ceremonies too freely. B. painted two pictures for the Oratory of Fredericksborg, 'Visit of Mary to Elizabeth,' and 'Jesus Christ healing a Blind Man.' Other works are: 'Peasant's Cottage,' 1858; 'Fisherman's Family on Shore;' Repast;' Fisherman from Sorrento' (Copenagen Gallery); 'Two Monks,' 1862: hagen Gallery); 'Roman Street Barber;' 'Promethous;' Daughter of Jairus;' Samson and Delilah;' James of Scot-James of Scot-land visiting Tycho Brahe; 'Chris-tian II. in Prison at Sonderburg,' 1871; 'Hans Tayson protecting Bishop Rönnow,' and two frescoes in Copenhagen University. See Müller, 33: Weilbach, 72: Muther, History of Modern Painting, 1895-6.

Bloch, Marcus Elieser (1730-99),

Academy, went to Italy 1852-65,

ichthyologist, was by profession a physician. His invaluable Allgemeine Naturyeschichte der Fische, 1782-95, is the earliest standard work on ichthyology. Although he followed the arrangement of Linnaus, he estab. 19 new genera and 176 fresh

species.

Blochmann. Henry Ferdinand (1838-78), orientalist, studied Eastern languages at Leipzig and Paris. En-listing as a private in the British army in order to have opportunities of living in India to study the languages in situ, he early succeeded in obtaining his discharge through the kindly interest of Nassau Lees, who later secured him the assistant pro-fessorship of Arabic and Persian at the Calcutta Madrasa. With the ex-ception of one or two archeological tours, B. passed most of his life at the Madrasa, where ultimately he became principal. The smallest de-tails of Mohammedan Indian history interested him, and though his Con-tributions to the History and Geo-graphy of Bengal is invaluable, he will be longest remembered for his faithful translation of the Ain-i-Akbari of Abul-Fazl (first vol. only), the appended notes of which give a splendid picture of the Emperor Akbar and his court.

statistician. He was born on Feb. 18. of Jewish descent. He was naturalised at Paris after the completion of his studies at Bonn and Giessen. entered the French ministry in 1846 in the agric, dept., and in 1852 he was appointed a member of the statistical office. His reputation as a stat stician began upon his retirement in 1862 from public office, and a subsequent devotion of his whole attention to the compilation of statistics. In 1880 he was elected a member of Académie des Sciences, Morales, et Politiques, and on Jan. 9, 1901, he died. Among his works are: Dictionnaire de l'administration française, 1856; Statis-tique de la France, 1860; Diction-naire générale de la politique, 1862; L'Europe politique et sociale, 1869; and Annuaire de l'Economie politique et de statistique.

Blockade, and Laws of. B., a term used in both military and maritime warfare, but restricted to a very great extent nowadays to maritime warfare. In military warfare it is an operation used in the place of a regular siege or bombardment, and consists of an attempt to cut off from all outside constants. from all outside communications and supplies a hostile town. Obviously it is mostly used against a tn. difficult of bombardment and regular siege, but also in a number of cases against tns. with a thriving commerce and trade which find even a slight interference with that trade irksome, and are, therefore, the more easily inclined to surrender. In the military sense a B. consists of the actual possession by a military force of all means of entrance and exit from the tn. The examples of the B. of Paris and of Metz in the Franco-Prussian War of 1870-71 may be mentioned, although the former after being blockaded also underwent a terrific bombardment. Naval B., which is usually meant when reference is made to B., is, however, different in many essentials from military B. Originally naval B. must have been the equivalent of military B., that is, a port which was blockaded was as effectually cut off as a tn. surrounded by a military B., and even nowadays a naval B. is often only the naval supplement to a land siege, and in that case may be regarded as a purely military machine and an effectual barrier to all ingress and egress by sea. quickly a differentiation must have grown up between naval and military B., since obviously it would be an open act of war for a neutral to attempt to cross the lines of a blockadcture of the Emperor Akbar and scourt.

Scourt. Slock, see Pulley.

Block, Maurice (1816-1901), a Fr. actually taking place and in the best

of faith. So in the course of time there | century, many books, mostly regrew up in naval warfare the recognition of the rights of neutrals, and notice was given to neutral powers of the state of B. But this in itself led to abuse: a power would notify a certain port as in a state of B. before the actual B. had taken place, and this ridiculous system reached its highest point in the huge paper B. of Napolcon's continental system and Great Britain's reply in the orders in council. The futility of the continental system, which forbade France or France's allies to have communication with Britain, was obvious in that Napoleon himself was dependent upon Britain for a great part of his supplies. America, as the neutral nation which really suffered most, protested strongly against this system. carly part of the 19th century Great Britain and the U.S. asserted that in order that a B. should be binding

was declared that 'Bs. in order to be binding must be effective, that is to say, maintained by a force sufficient really to prevent access to the coast of an enemy.' Pacific B. has given rise to much protest from neutral nations, as, for example, in the B. of the Venezuelan ports by Great Britain, Germany, and Italy in 1902-3, so that it is now practically recognised that the right of B. is of a It is necessity a belligerent right. now recognised also that if a B. abandons its position save under apandons its position save under stress of weather, if it is driven away by the enemy, or if it breaks the article, 'a B. must be applied im, partially to the ships of all nations,' it ceases to be effective. The law as applied to the position of neutral vessels is, that neutral vessels are entitled to notification before they can be seized for violation of the R. can be seized for violation of the B.; that this notification may be made by one of the blockading vessels, by proclamation or by notoriety. It is, however, usually recognised also that if a vessel shall have had notice in any way and attempts to violate the B., she is a good prize, but if such notice is not formal but arises from notoriety, then the rule shall be as leniently construed as possible. Amongst the subjects dealt with at the Hague Conference in 1908-9 was B., and a number of rules dealing

ligious, were printed in the Netherlands and in Germany by this process. As a rule, each page was mainly occupied by an illustration, with a few explanatory words appended, but sometimes whole pages of text were engraved. Hard wood was generally used, but before Gutenberg's time copper also had come into vogue. One of the best known series of B., the Biblia Pauperum, was taken from a book composed about \$50 by St. Ausgarius, Bishop of afterwards Hamburg, and contained biblical pic-tures, with explanatory Latin text. About 1428 Lawrence Kostar, of Haarlem, printed an ed. of the Speculum Humanæ Salvationis, each page half picture, half text; the excellence of the latter (cut of course in reverse) is remarkable.

Blocking Course, a technical term applied in architecture to the course of stones or bricks placed above the cornice to make a termination.

Block Island, formerly Manisces, an is. situated about 9 m. S. of Rhodes Is., U.S.A. It belongs to the last-named isle, and has a length of about 8 m. At its northern extremity is a lighthouse. New Shoreham, a popular summer resort, stands on the is., whose harbour on the eastern side is improved, if not altogether formed, by a breakwater.

Block System, see RAILWAYS.
Bloemaart, Abraham, or Blom (c. 1565-1657), a painter of the Dutch school, born at Gorkum. He started his career while very young, painting all kinds of objects, but later on he settled down chiefly to the painting of landscapes, through which he became greatly esteemed. He is famous for his distinct originality, but more especially for the exceeding brilliance of his colouring. His greatest fame seems to have been attained in his representation of the chiaroscuro. In spite of all this, his paintings have been at various times very severely criticised. He had four sons; Cornelis, the youngest, was noted as an en 'at Utrecht. N. Holland.

the N., and has a pop. of 3554. Bloemfontein, cap, of the Orange Free State. It is situated at a height of 4518 ft. above sca-level on the R. Modder. It is connected by rail with Kimberley, Cape Town, Port Elizabeth, and Johannesburg. Among its public buildings is the Raadzaal. with this subject were formulated.

Block-book... Y is a reprinting from every series of the provincial council is said to the way of the provincial council. Though its manufs, are few, its trade climate makes it a favourite resort of the provincial council. formerly the meeting-place of the Orange Free State Rand, now the seat of the provincial council.

Haarlem to

Blois

invalids. Eng. is the common tongue. In 1904 the pop. was 33.883, nearly half of whom were white. Lord Roberts occupied the place during the Boer War of 1899-1902. It was chosen as the seat of the Supreme Court of S. Africa in 1910, upon the formal declaration of its recognition as a province of the Union of

S. Africa.

Blois, the cap. of Loir-et-Cher, a dept. of France. It is situated mainly upon the r. b. of the Loire. The turns of two parts, ancient and modern. The former occupies a position upon a hill, while the latter is nearer the riv. The newer portion has fine quays, and is specially attractive to the visitor by reason of its magnificent old castle. Its many historical associations give it additional interest. Its pop. in 1906 was 18,457, and its manufs. are chiefly porcelain and gloves, and its trade in brandy, wine, and timber is increasing.

Blois, Peter of (c. 1120-c.1200), a mediaval theologian and moralist born at Blois. He studied theology at Paris under John of Salisbury. Later on he became preceptor to William II. of Sicily, and was made Keeper of the Privy Seal in 1167. The next year he came to England as a private secretary to Henry II. In 1176 he became chancellor to Richard, Archishop of Canterbury, and also to Baldwin, who succeeded Richard. His writings include many allegorising sermons and addresses.

Blok, Petrus Johannes, Dutch historian, born at Helder, 1855; studied at Leyden; professor of history at Groningen, 1884; at Leyden, 1894; directed historical studies of Queen Wilhelmina. His special study was social-political history of Netherlands in middle ages. Works: Eene Hollandsche stad in de middeleeuven, 1883; Nederlandsche rans, as History Nether-

lands,

monthl
Blomefield, Francis (1705-52), a topographer, born at Fersfield, Norfolk, England. He is known principally by his great work. The History of Norfolk, which gives extensive information concerning his native county. He did not live to complete it, however, but died while at work upon the 3rd vol. It was continued later on by a Mr. C. Parkin, who publish in five vols. From 1805-10 it was again pub. in eleven volumes.

of the

Blomefield, Leonard (1800 - 93), naturalist, formerly Leonard Jenyns, was educated at Eton and St. John's, Cambridge. In 1835 he pub. his excellent Manual of British Vertebrate bridge. He dinicals, the ornithological sections

of which have been selected for special praise. From 1828-49 he was vicar of Swaffham Bulbeek, Cambridge, and, although the chair of zoology at his own university was offered him, refused to give up his parochial work. In 1860 he finally settled at Bath, to which town he presented the 'Jenyns' Library,' which contained 2000 vols. dealing mostly with natural history, and also his fine herbarium of British plants. He was the first president of the Bath Natural History Club, and was further a member of most of the learned scientific societies.

Blomefield, Sir Thomas (1744-22), general and colonel-commandant of the Royal Artillery, was with Admiral Hawke's fleet at Quiberon, served in the West Indies at the capture of Martinique and Havannah, and became in 1771 aide-de-camp to General Conway. As brigade-major he constructed floating batteries on the Canadian lakes: he was wounded at Saratoga. In 1779 he was appointed superintendent of the Royal Brass Foundry, in which capacity he carried out much needed reforms, substituting cast-iron and brass guns for the inferior ordnance he was obliged to condenn. In the expedition against Copenhagen in 1807 he distinguished himself by his command of the artillery, and from 1779 to his death made full use of his scientific experiments in gunnery in his work as inspector of artillery.

Blomfield. Arthur Sir William (1829-99), architect, was educated at Rugby and Trinity College, Cambridge. He had already built up a large practice for himself, when, in 1861, he was elected president of the Architectural Association. It was as architect to the Bank of England that. he designed and built the law court-branch in Fleet Street. This is his most notable achievement, but he also designed and restored many churches and schools. The rebuilding of the nave and S. transept of St, Saviour's, Southwark, in revived Gothic style, and the entire S. porch, was carried out under his direct supervision, whilst his careful work may also be seen in Salisbury and Canterbury Cathedrals. Other of his productions are King's School, in Chester, the museum at Charterhouse. Godalming, the Royal College of Music, and the church of St. Barnabas, Oxford, the last in an Italian

Blomfield, Charles James (1786-1857), a bishop of London. His father was a schoolmaster at Bury St. Edmunds. From his father's school heproceeded to Trinity College, Cambridge. He became a fellow of the university. In 1810 he took holy

orders and became incumbent of St. | mezzotints. He was not successful. Botolph, London, nine years later. In 1822 he was appointed archdeacon of Colchester. Subsequently he was ordained bishop of Chester in 1824, from which place, after holding office for four years, he was transferred to London. As a classical scholar he possesses some standing, and his editions of Æschylus. Callimachus, and Euripides are crudite and scholarly. His work as an ecclesiastic was, in an unusual measure, active and thorough. One of his objects was the building of additional churches. He personally superintended the organisation of a scheme to build fifty simultaneously.

(1808-71), a Biommaert, Philip Flemish author, born at Ghent. with Conscience collaboration he worked to secure the revival of the Flemish language. His editions of Theophilus in 1836, a Flemish poem of the 14th century, and Oul-vlacmsche Gedichten in 1851 carned him a certain amount of literary fame as an anti-French zealot. A vol. of poems, his first product, are of less importance, while his greatest work is his history of the Belgians (1849). He demonstrates in this work the existence of a high standard of culture among his countrymen, attained in the face of political insignificance.

Blommer, Nils Johann Olsson (1816-53), Swedish landscape painter, born at Blommeröd in Sweden. He tried to represent all that lies in the poetry of the people, and portrayed mythical figures which belonged to no particular age or poet, but rather gave expression to national sentiment. Among his works are 'Neckan's Sport.' The Youth and the Elves, 'Neckan's The Faithful Sister.

Blommers, Bernardus Johannes, Dutch painter, born at La Haye, 1845. Johannes, He paints interiors, landscapes, and scenes of humble life. His pictures have great beauty of colouring and spiritual power, and depict largely the joy of life. In 1875 his 'Where are the pigeons!' won him much fame. Other works are 'Girl Knitting,' Other works are Shrimpers' (Amsterdam National Juseum), 'Mother's Joy.' Private Museum), Edinburgh. collections in London. and Glasrow contain pictures of his. See Roose's Dutch Painters of the Nineteenth Century, 1898-1901.

Blond, or Blon, Jacques Christophe (1670-1741), a Ger. painter, born at Frankfort; studied in Italy, and lived for some years at Amsterdam as a painter of miniatures, and later of larger portraits. He then came to England and attempted to introduce Lostman's method of copperplate reproductions in colour

and died miserably in a Fr. hospital. Blondel, a Fr. minstrel, is famous in history because tradition says he was the means of securing the ransom of King Richard I. after his imprisonment by Leopold, on his journey home from Palestine. Unfortunately a late 13th century Chronicle of Rheims is the sole source of this tradition. According to the tale the harper in the course of his wanderings in search of his master, the Lion Heart, played one day a love song beneath the castle of Dürrenstein in Austria, and to his joy recognised the well-known voice of Richard singing that the target the castle of the harms the castle of the history of the castle of the harms the harms the castle of the harms the harms the castle of the harms th

from the tower the selfsame ditty. Blondin, Charles (1824-97), a celebrated rope-walker. He was born at St. Omer. France. His professional career began at the age of five, when his talents earned for him the title of wonder. Trained at ' little Lyons, he devoted his abilities to rope-walking, and on his successful attempt to cross Ningara Falls on a rope 1100 ft. long and 160 ft. above the water, achieved instantaneous popularity. He performed the same feat many times, varying it with different accompaniments. among which were those of carrying a man across on his back, performing blindfold, wheeling a barrow, and on stilts. He died in 1897 at Ealing, London. Vast crowds flocked to his performances, the guthering at his first attempt over Niagara Falls number ing over 25,000.

Blood, the fluid by which the tissue and organs of the body are nourished? and their waste products carried away. Arterial B., which is rich de oxygen, is bright red in colodor venous B., containing little oxygert is dark red. It is slightly heavier these matter for our 100 km and 100 km and 100 km. water (sp. gr. 106), has an alkaline reaction, and has a temp of abohis 100° F. The quantity contained (In the human body is about one-theye ŀΙν teenth of the whole by weight. has a circulatory movement, beior-pumped through the arteries than veins by the heart at the rate of friht. 72 to 130 beats per minute, that amount propelled being from 150 tto 190 c.cms. per boat. There are tal circuits in the B. movement; from the left ventricle the fluid proceeds through the systemic circulation, communicating with all the tissues and organs except the respiratory system: it returns to the right auricle. is passed on to the right ventricle, whence at the next beat it is propelled through the pulmonary circulation. where it becomes oxygenated, returning again to the left auriele; it is once more forced to the left ventricle, where the cycle starts anew. Vlewed

smaller number of white corpuseles or leucocytes. The yellow fluid, called plasma, is very complex in composition, containing water, albumins, or proteids, and a certain amount of inineral salts, of which sodium chloride is the most important. One of the proteids, fibrinogen, is converted into a stringy substance, fibrin, when the B. leaves the body. The threads of fibrin settle down, carrying with them the red corpuscles, until the B. becomes a jelly-like clot. This process is called congulation, and has important uses, for in a wound the B. clots as it emerges and plugs up the injured vessels. The calcium salts in the B. are essential for the conversion of fibringen into fibrin, so that clotting may be prevented by adding potassium oxalite, thus forming calcium oxalate, which settles at the bottom of the fluid, so that the surface does not coagulate. After the formation of the clot, a straw-coloured liquid separates out; this residue is called serum, and represents the plasma minus the fibringen. The therefore, serves the plasma, medium for securing the mobility of the corpuscles, and also contains substances capable of producing coagulation.

Red corpuscles.—These are red bi-concave discs of '008 mm. diameter and '002 mm. thickness. They have t tendency to run together in roule-aux when the B. is withdrawn from the body, and are so numerous that a diblic millimetre of B. contains about Wre millions. Hence it is that their sold colour dominates the B. as a in hole; the red is due to the pigment laremoglobin which is enclosed in each 18 rpuscle by a fine membrane. laremoglobin is capable of combining Hosely with oxygen, so that the lanction of the red corpuscles is to marry oxygen from the lungs to the prerent parts of the body. The tolygen readily combines with sub-

folances which have a stronger affinity cirr it than hamoglobin, so that the o jemoglobin travels back to the lungs i reficient in oxygen and is darker in colour. The carbonates and other waste products are carried back dis-(solved in the plasma. puscles do not actually come into Blood, Thomas (c. 1925-ov), an aug-contact with the fibres of the tissues adventurer, was commonly styled contact with the fibres of the tissues adventurer, was commonly styled

microscopically, the B. consists of a has separate vessels called lymphatics straw-coloured fluid containing a large number of small round red bodies called red corpuscles, and a lymph may be returned to the B. A smaller number of white corpuscles bale colour in the blood results from pale colour in the blood results from poverty of red corpuseles, and is the condition called amemia; the result is that the tissues and organs are not adequately nourished.

White corpuscles .- The lencocyteare animal cells consisting of protoplasm. They are capable of amœboid movement, that is, a corpuscle can change its shape and engulf small particles. This property renders them indispensable to the body as seavengers or destroyers of poisonous par-ticles and germs. When disease germs are present in the B., there is a contest between their multiplying powers and the capacity of the leucocytes for absorbing them. They are found in the lymph as well as in the B., occur in varying forms, and probably very in function. Leukiemia, or leuko-cythæmia, is a condition where the number of white corpuscles is higher than normal; an enlargement of the lymphatic glands occurs, and in the acute form other rapid changes take place which are highly dangerous.

Blood, Avenger of. Among primitive tribes, where there was no central authority to maintain order and justice, each community was bound to defend itself, and this induced in every family or clan a strong feeling of solidarity for purposes of protec-tion or retaliation. If one member of it was injured all the rest were zealous for retribution. There seems to have been practically no distinction drawn in very early times between accidental and intentional homicide. Each was avenged alike, preferably by the nearest male relative of the slain man, 'the A. of B.' This state of things still exists in some conntries, e.g. in Arabia, and even in the wilder dists. of Europe. Among the Hebrews, however, it was recognised that deliberate murder stood on a different footing from accidental manslaughter, and though the Goel haddam (from Goel, the nearest kinsman) in both cases sought for revenge, yet there were provisions made for securing to an unintentional homicide a place of refuge and a fair trial. For such the altar of the tabernacle and ried back disthe cities of refuge were sanctuaries. The red cort(Ex. xxi., Num. xxxv., Deut. xix.).

Blood, Thomas (c. 1628-80), an Eng.

connect with the hores of the dissues adventurer, was commonly styled which they feed: the lymph or part Colonel B. He received presents of of the colourless portion of the B. estates in Ireland in return for miliacts as an intermediary, passing tary services rendered to the part through the walls of the capillaries side. These were forfeited at the and reaching every part of the tissues. Restoration, but he again got possess—The quantity of lymph in the body sion of them from Charles II. He is greater than that of the B., and it

bloodshot

breeds no

Europeau

of Ireland at Dublin Castle. Αt another time he attempted to seize the Duke of Ormonde with intent to hang him. Shortly after this, he almost succeeded in thieving the crown and jewels from the Tower of London. Charles II. visited him in prison, and through his fearlessness and persuasion B. obtained his release. One of his most daring adventures was the rescue of Captain Mason from a guard of troopers close to Doneaster.

Blood-bird, or Mcliphaga sanguinglenta, is a species of the Australian family Meliphagide, or honey-eaters. The bird is small and beautifully coloured, with a long beak and tail.

Blood flower, a planaryllidace family. digenous to S. Africa. of plant It is in-The usual colour of the flower gives it its name. It contains poison, and the juice of one variety, the H. loxicarius, is used in S. Africa for the poisoning of sometimes achieved by cutting bulb greatest expense and pains would be across, an operation which causes incurred.

sense of smoll, and more where this sense is employ tracking of a bleeding creat

blood provides the scent necessary. The dog is able to select from a constantly moving herd of deer the wounded one, and to track it through seemingly impassable difficulties. It is sometimes alluded to as a sleuthhound, from the Middle-Eng. word 'sleuth,' meaning track. It is probable that from the B. all other varieties of the hound breed are de-scended. Formerly it was greatly used in Britain, though its use is now very rare, the latest occasion when Bs. were led being about 1880, when Lord Wolverton hunted with them in Dorsetshire. The physique of a B. is magnificent, and especially noble is the build of the head. The large dropping ears, the long face, and the pose itself, give it a dignified and grave bearing. The colour of the grave bearing. The colour of the animal is deep tan, occasionally with black spots. Their use in sport and in the sterner purposes of man-hunting dates from the Romans. Until the abolition of the slave trade America, their use in tracking runaway slaves was almost universal, though the variety of hound then used was not the pure B., but a type called the Cuban-hound. This type is largely different from the true, and resembles a breed obtained by crossing mastiffs with bull-dogs,

deavouring to seize the lord-lieutenant; but their inferiority in qualities of perceptive scent was amply balanced by their extraordinary forocity. It is sometimes called the Cuban-mastiff. The method of the B. in retaining the scent of its quarry is to follow it steadily and slowly till it is successful in reaching the object pursued. however, the scent is lost, t sagacious animal carefully retreats along the unsuccessful path till the scent is found, when it makes a fresh attempt in another direction. characteristics of the B. are as follow: The head is long and domeshaped, with large pendulent cars; between the eyes and above them are Ifully puckers of the skin, which add to the tail.

tail. dog's already intelligent expression; the the eyes themselves are somewhat in the did is inthird lid is

n through art of the arrows. The flower is in the form of a various nobles to secure a perfect fine cluster. Propagation of bulbs is strain, to attain which end the

Bloodhound, belonging to that tion due to the circulation of bacteria class of dogs called hounds. Its name in the blood stream. See PYJEMIA.

. a red rain which falls in Europe. Microscopic reveals red dust from the sandy deserts of N. Africa to be the cause of the phenomenon. The cause is thought to be found in the upward force of waterspouts and whirlwinds. Among the natives of N. Africa these rainless whirlwinds are called 'devils.' The Canary Islands are subject to similar phe-

nomena. Bloodroot, or Sanguinaria canadensis, is a species of Papaveraceæ native to N. America. It grows from a to N. America. rhizome which is of use medicinally.

Blood-stains, the dried and dark-ened residue left on clothing, etc., after contact with blood, often im-portant as evidence in criminal actions. The problem may be to decide whether a given stain was produced by blood or not, whether the blood was that of a human being or not, or whether the stain is recent or The time for which a B. has not. been in existence can only be approximately decided by the amount of hardening or the deepening of the tint. After the blood has become black, no further change can be detected. tests to decide whether a stain was produced by blood or not may be microscopic, spectroscopic, or chemical. The stained substance is first soaked in a solution of glycerine in water to a sp. gr. of 1.028.

softens the stains without causing family Chironomidæ. In form they other changes. Examination under are worm-like, and owing to the the microscope should then reveal the hemoglobin present in it their blood presence of corpuscles, which, however, are similar in shape amongst all water, and anglers use them for bait. the mammalia except the camel tribe. For spectroscopic examination a solution of the suspected substance in antennæ. C. plumosus is a common water is prepared. The spectrum of British species. blood exhibits two dark bands, one in the middle of the green rays, and the the middle of the green rays, and the 'Woman's Rights Movement' in other between them and the yellow. America gave rise to the adoption of The addition of ammonium sulphide an attire for its members somewhat to the solution reduces the oxy-resembling that of man. In the hemoglobin to hemoglobin, and one dark band only is exhibited. The gave her name to a costume which chief chemical tests are the reaction with guaiacum and the production of skirt reaching just below the knee, hemin crystals. The former is carried out by treating the stain with tincture made from the pattern of Turkish of guaincum and adding a small trousers. The courage necessary to of guaiacum, and adding a small quantity of peroxide of hydrogen. A bright blue colour is produced, but the test is not decisive. Hæmin crystals are produced by adding common salt and glacial acetic acid to the stain and heating to evaporation. These tests merely decide the pres-ence of mammalian blood, and to distinguish between human and other blood it is necessary to make use of the effect of incounting animals with the blood of a different species. If, for instance, a rabbit has been inoculated with human blood, its blood produces an antiserum which reacts in a certain way with a solution of human blood, from whatever individual it may have come, and which does not react in that way with the blood of an individual of any other species. It is only necessary, therefore, to treat the blood of a suitably inoculated rabbit with a solution of the suspected stain, to decide whether the latter was produced by the blood of man or not.

Bloodstone, a name given to the stone heliotrope. It is a dark green with red spots. The presence of a , with red spots. chloritic mineral explains the green colour, while the red is due to hæmatite. Inferior types are characterised by an opaqueness, and bear a re-semblance in this respect to the jasper. A distinction is drawn between the B. and the heliotrope from this same transparent property, present in the heliotrope and absent in the common forms of the B.; but the distinction is scientifically untrue, and therefore unrecognised. In the Deccan traps of India the B. is found in large quantities, and it is cut and polished at Cambay. Its use is

The full-grown insect is a midge with

Bloomer Costume. About 1848 the 'Woman's Rights Movement' in trousers. The courage necessary to adopt the new form of apparel was found wanting in many, and the social effects prevented all save a few from following Mrs. Bloomer's advice. Many ideas relative to the improvement of feminine attire have been advanced, of which the 'divided skirt ' is the nearest approach to the bloomer costume.

Bloomery, a refining furnace for changing pig iron into malleable iron. The iron is melted by the furnace, and a blast driven through pipes oxi-dises the carbon and silicon, a bloom,' or lump, of malleable iron

being the result.

Bloomfield, cap. of Davis co., Iowa, U.S.A. It is situated 1 m. S. of R. Fox. It possesses flour mills, and contains the S. Iowa Normal and Scien-tific Institute. Its pop. is 1913. Bloomfield, Benjamin, Baron (1768-

1846), lieutenant-general, owed his advancement to his musical talents, which favourably impressed the Prince of Wales, afterwards George IV. The latter appointed him his chief equerry in 1806, and eleven years later the keeper of the privy Until 1822 B. remained the Prince's confidential adviser, and although he then resigned his appointments because he had fallen into disfavour, he was sent to Stockholm in 1824 as minister plenipotentiary. His benevolence was conspicuous during his direction of the garrison of Woolwich, where he founded schools for the children of soldiers of the ordnance corps.

Bloomfield, Robert (1766-1823), an Eng. poet, was born at Honington and educated at the national school. named quantities, and it is cut and and educated at the national school. polished at Cambay. Its use is mainly in the decoration of seals, London. His first poem, The Milk-knife-handles, etc. The name is applied also to hæmatite.

Blood-worm is the popular name capplied to the larve of some dipterous farmer's Boy, and he afterwards insects of the genus Chironomus and composed it in a London garret. It

poverty.

Bloomington: 1. A city of McLean co., Illinois, U.S.A. It has foundries and machine shops, meat-packing establishments, and timber-yards. Valuable coal mines are near the city, which is situated in a fertile and progressive farming region. A small forest called Blooming Grove gives the tn. its name. Its commercial rise dates from 1867 when the proximity of coal was discovered. Pop. (1906) 25,506. 2. A city of Monroe co., Indiana, U.S.A. Its pop. of 6460 are employed chiefly in the manuf. of furniture and wooden articles, and in the adjacent limestone quarries. It has a noted university, whose station of biology is situated at Winona Lake, Kosciusko co. Its settlement took place in 1818.

Bloomsbury, a dist. of W. Central London, lying N.E. and S.W. between Gray's Inn Road and Tottenham Court Road, and N.W. and S.E. between Euston Road and Holborn.

between Easton Road and Holborn. It contains the British Museum, University College, University College Hospital, and other public buildings. Blore, Edward (1787-1879), architect, born at Derby on Sept. 13, son of the topographer, Thomas B. (1764-1818). Hedesigned a house at Abbotsford for Sir Walter Scott, and executed designs for other important mansions and public buildings in various parts of the country. He was entrusted with work at Lambeth Palace, Windsor Castle, Glasgow Cathedral, etc. He did much to revive the Gothic style of architecture. Hed. in London.

Blore with Swinscoe, a township of N. Staffordshire. It is situated 4 m. N.W. of Ashbourne. Pop. 250. Blount, Charles 1654-93). English

author, born at Upper Holloway on April 27. His father, who was Sir Henry B., had pub. a description of his journey to the Lovant. Every paternal care was lavished upon education. Anima $_{
m His}$ Charles' Mundi awoke considerable criticism on account of its scepticism, and was banned by the Bishop of London. His best known book is The Two First and B. sho

Blount, T

was pub. in 1800, and 25,000 copies sional intentions. His works are were sold. His later life was rendered unhappy through blindness and among literary antiquarians; Nomolexicon, a dictionary of law terms; and Fragmenta Antiquitatis. His Boscobel appeared, ed. with his Life, in 1894. He died at Orleton.

Blouse was originally the Fr. term used for a loose-fitting upper garment worn by the peasants, the favourite colour being blue. The B. has for very many years been popular with women of all countries, and specially of England and America, Blow, John (1648-1708), was an

Eng. composer of music. He obtained his degree of doctor of music, and then became organist of Westminster Abbey in succession to Purcell. In 1674 he was master and composer at the Chapel Royal, and afterwards master at St. Paul's Cathedral. He composed the music for the anthem I was glad when they said unto me at the opening of the cathedral.

Blow-fly, or Blue-bottle, is the name given to sev. species of Muscidee, dipterous insects related to the house-fly, Musca domestica. differ from the ordinary fly in being of greater size, having a bright blue abdomen, and in flying with a loud buzzing sound. The eggs are deposited in meat and develop into maggets. Calliphora vomitaria and C. crythrocephala are common British species: and Sarcophaga carnaria, the flesh-fly, a member of the family Sarcophagide. resembles the B. very closely.

Blowing-machine, a contrivance re or less concompressed air. ne is the ordin-

which consists of a wedge-shaped chamber with collapsible leather sides; the top and bottom are rigid, and the bottom is provided with a valve opening inwardly, so that as the collapsible sides are extended, the air enters. the top and bottom are squeezed together again, the air is prevented by the valve from escaping otherwise than by the nozzle. In the double bellows there are two compartments separated by a fixed partition, and an inwardly opening valve is situated in Bost known book is The Two Pass. On the machine being extended and Books of Philostratus, concerning the Life of Apollonius Tuaneus, 1680. compressed by a lever acting on the His end was tragic. An infatuation for his deceased wife seister was made the lower compartment, whence it can only escape to the upper one, and the lower proservoir in weight on the under side of each compartment. which acts as a reservoir, a weight on the uppermost rigid board producing

quarian, b shire. Detailed knowledge of his life the outgoing pipe from the upper is scanty. His Catholicism hampered compartment. For blast-furnaces become a few and beautiful from the supper compartment. his career at law, and he retired to his blowing engines, depending upon the state at Orleton. He continued his to-and-fro motion of a steam-driven study of the law, but with no profes-piston, are used. There is a chamber

bers of the cylinder communicate with a large air-reservoir, so that the blast is kept uniform. Fans for compressing air depend upon the centrifugal motion of air between vanes fitted to the spokes of a rimless wheel. fan is enclosed in a cylindrical chamber somewhat excentrically; the air is admitted at orifices around the axle, is driven towards the circumference by the revolution of the fan, and emerges through a pipe fixed tangentially. The best results are obtained with curved vanes, the convex side towards the exit. In parts of Spain a water B. is used. A fall of water is necessary, and the arrange-ment includes a cistern where the water collects; a wooden shaft with a few air holes through which air is sucked as the water falls down the shaft; and a wind chest where the air and water separate. The water flows away through an exit pipe at the bottom of the chest, and the air is forced out through a nozzle by the compression induced by the continuous descent of air mixed with the falling water. Roots's rotary blower has a chamber which consists of two semi-cylinders separated by a rectengular space greater in width than the radius of the cylinders. Mounted axially with the cylinders are two revolving pieces, shaped like a figureof-eight, almost equal in length to the diameter of the semi-cylinders. They revolve in opposite directions, being at right angles every quarter-revolu-The air enters at the base of the chamber into the space between the revolving pieces which gradually diminishes until the air is expelled at the top of the chamber.

Blowpipe

Blowpipe is a weapon employed by Indian tribes of S. America both in hunting and in war. A poisoned shaft, fixed in the end of the B. or tube, is driven out by the breath. The tube, usually about 10 ft. long, is made of reed or the stems of a palm. Near Para, the poisoned arrows, made of palm spines, are 17 in. long, whilst in Peru they are only about 2 in. in length. In Borneo, the Dyaks have a similar weapon called a 'sumitan.' game. The arrows are deadly, even

at a distance of 35 yards.

with an inwardly-opening valve on the mouthpiece at the narrow end each side of the piston, so that air is and a fine nozzle inserted towards the expelled at each stroke. Both chambase. This shape provides an air chamber which tends to equalise the blast, and in which the moisture of the breath may condense. A uniform blast can, however, only be obtained by using the mouth as an air-chamber, keeping it well distended by air throughout the operation. Glassblowers use a similar instrument, and for high temperatures a blowingmachine is used.

Bloxam, John Rouse (1807-91), historian, educated at Rugby and Cambridge; M.A. of Magdalen College in 1835, D.D. 1847, a fellow 1836, In 1841 he became pro-proctor of the university, and held various offices at his college until 1862. He was full of sympathy with the Tractarian vicar of Upper Beeding, Sussex. He published and left in manuscript valuable collections relating to the history of

Magdalen College.

Bloxwich, a vil. of E. Staffordshire.

Bloxwich, a vil. of E. Staflordshre. It is an eccles. dist., and is situated 3 m. N. of Walsall. Its pop. is 5558. Blucher, Gebhard Leberecht von (1742-1819), Prussian field-marshal, Prince of Wahlstadt, was born in Mecklenburg-Schwerin. In the year 1756 he entered the service of Sweden, and four years later was captured by Prussians in the Pomeranian campaign. He was persuaded ranian campaign. He was persuaded by his captors to enter the service of Prussia and was given a lieutenancy. He served in the later battles of the Seven Years' War. He gained pro-motion to the rank of captain, but by his excesses in private life lost favour with the authorities, and disgusted with his treatment retired into private life (1773). 'Captain B, can now take himself to the devil,' was Frederick's comforting remark on his resignation. For fifteen years he settled down on his own property and devoted himself to farming, but in 1788 after the death of Frederick he was restored to his old regiment the Red Hussars, in the following year he became a colonel, and in 1794, as a reward for his services in the Fr. campaigns, he was made a major-general. In 1801 he became a licu-tenant-general. The war of 1805-6 found him active as a cavalry leader. The arrows are there tipped with the and as such he took part in the battle the arrows are there appea with the land as such the covered the rear the B. is that it makes no noise, so of Prince Hohenlohe's army on the that the hunter can discharge a retreat to Pomerania. He then went that the hunter can discharge a retreat to Pomerania. He then went quiver-full before picking up his northward and fought in the neighbour the contract of the property of the bourhood of Lubeck, being in Nov. 1806 forced to surrender to the Fr. Blowpipe, an instrument used with at Ratkau. He was soon exchanged a gas or spirit flame to quicken combustion and therefore increase the temperature of the flame area. In its of Tilst. During the period of usual form it is a conical vessel with Napoleonic domination he was

party, and was, in 1812, canisned for his pronounced opinions from the court. The beginning of the War of Liberation found him placed in high command of the Prussians, and he organised the Prussian army, becoming commander-in-chief of the army of Silesia with 90,000 men under his command. He was full of energy his command. He was full of energy and was prepared to attempt anything. His army was kept together to a very great extent owing to the knowledge that B. would attempt anything whether supported or un-supported. He defeated Macdonald at Katzbach, and by his defeat of Marmont prepared the way for the defeat of Napoleon at Leipzig. He was made a general field-marshal after the defeat of Marmont, and stormed Leipzig on the last day of the battle. He persuaded the allies to carry the war into Fr. ter., and by his courage and energy in the face of defeat he ultimately triumphed and led the army of Silesia directly on to Paris. He proposed that the ravages of the French in Germany should be avenged by equal ravages in Paris, but was prevented from carrying out his proposals. In 1814 he visited England and was welcomed everywhere enthusiastically; in the same year also he was made Prince of Wahlstadt. He retired to Silesia, but was soon called from his retirement to take part in the campaign of the Hundred Days. He sustained a severe Hundred Days. He sustained a severe defeat at Ligny, and in this battle nearly lost his life. But he moved on and marched to the assistance of. Wellington. His forced march was the means of his intervening at the critical moment in the battle of Waterloo, and of turning the defeat of the Fr. into a headlong rout. The rout was complete and decisive owing to B. 's rejentless pursuit of the energy. to B.'s relentless pursuit of the enemy. The allies re-entered Paris in July 1815, and here B. stayed for some time. He retired, however, to his Silesian estates owing to his age, and died there in Sept. 1819. Through-mt his life he was rash, hasty, and out his life he was rash, hasty, and impetuous, but these qualities, which told against him in private life, were the means of making him a dashing leader of cavalry, a good patriot, and a great general. Bludenz, a tn. of Austria. It occu-

pies a position on the R. Ille. It has an interesting castle and alum works.

Its pop. is 2466.

Blue, one of the primary colours.

Artists use as B. pigments: ultramarine, which is prepared from lapis lazuli and is very expensive; cobalt B., of which there are many varieties.

actively in touch with the national Prussian B., which is ferrocyanide of party, and was, in 1812, banished for iron. In dyeing, the Bs. form a large group of the coal-tar products. In laundry-work a B. colour is imparted to linen and cotton goods in a very faint degree to heighten the impression of whiteness; many preparations for this purpose are in use.

Bluebeard, a character first appearing in 'Barbo Bleue,' one of Perrault's Contes (1697). He was a monster of wickedness who killed his wives, hiding their bodies in a secret room. His end came through an unconquerable curiosity of his last wife, who opened the secret room and made the gruesome discovery. He was killed by her brothers. His

blue beard gave rise to the appellation.

Bluebell is the name given to the Campanula rotundifolia in Scotland, where it grows very abundantly, and

which is a species of the monocoty-

ledonous order Liliaceæ. Blue-bird, sometimes called Blue-It is a warbler and Blue-robin. native of America, and is recognised with as much pleasure as the robin is by the English, by reason of its tameness and absence of fear of human beings. It is rather larger than the robin, though its general appearance and diet closely approach it. It lays about six pale-blue eggs. As a migratory bird it sounds the approach

of spring with its return. Blue Bird is the name of a play, written by Maurice Maeterlinek, which first appeared in London in 1910, and was regarded as a very great success. It is an allegorical fairy tale, and recounts in an extremely simple, charming manner the advortures of a boy and girl is the adventures of a boy and girl ir search of happiness (the 'Bine Bird')

Blue-books, a name given to parl publications, which are usually bound with blue covers. The idea of printing records of parl. business originated in a dispute in 1681 over the question of the Duke of York's exclusion from the throne. A statement was circulated that falsified accounts of the proceedings had been circulated, and it was therefore proposed by Sir John Hotham to print all reports. cheap price of these publications has only been in vogue since 1836. Save where a special price is stipulated, the usual amount charged is one halfpenny per sheet of four pages. A subscriber of £20 annually may obtain all parl. records issued throughout the year. Naturally the output increased in bulk, and possibilities consisting of cobalt mixed with put increased in bulk, and possibilities earthy or metallic bases; indigo; of confusion in their arrangement

See also

ings, and knee breeches.

existed, but the method of indexing | adopted and the inclusion of a précis in the front of each vol. makes it possible to refer quite quickly and easily to any paper, no matter how trifling, or of what session. From the Board of Trade a useful publication is issued monthly for sixpence, which contains valuable information relating to the world's trade and commerce. Without counting the accounts of the different Bills, the number of B. issued in 1887 was 1234. In 1887 a resolution was passed concerning the reproduction of printed matter in the B., which stated that no restraint would be exercised upon the reproduction of information contained in the majority of gov. publications, but that every rule of copyright was to be observed in the treatment of matter printed in the Board of Trade Journal, the reports of the Challenger, and official maps and charts. distinctive colours which mark foreign 'B.' are, America, foreign correspondence, red; Ger., white; Fr., yellow; Austrian, red; Portuguese, white; It., green; Japanese, grey; and Chinese, yellow.

Blue-bottle, Cornflower, or Centaurca Cyanus, is a species of Composite well known in our corn and wheat fields. The pretty blue head has large neuter florets of the ray.

Bluebottle-fly, an insect related to the house-fly. It is larger than the latter, but smaller than the blow-fly. A loud buzz marks its flight, and the extent of its wings across is almost an inch. Its head is black, the thorax grey, and the abdomen blue, with three black stripes. Its finely developed sense of smell enables it to find the flesh upon which it lays its eggs. It thrives most numerously from spring to autumn, and is common to Great Britain and Europe. There are many species, the most common among them being the greenbottle-fly. The process of development from the egg occupies about one month

Blue-breast, or Molacilla succica, is a bird belonging to the wagtail family. It breeds in holes of trees, lays greenish-blue eggs, feeds on insects and worms, and has a sweet voice. The plumage of this little creature varies from ashy brown above to bright blue beneath, and it is noted for the surest care.

for its sweet song.

Blue-coat School was founded soon after the endowment of Christ's Hospital by Edward VI. The old school buildings in Christ's at Newgate Street were given up in 1902. The fine new school at Horsham. Surrey, is now conducted on ordinary public school lines. The uniform still consists of blue gown, yellow stock-

CHRIST'S HOSPITAL.

Blue-eye, a bird of minute structure and great beauty. It is found in large numbers in New S. Wales. It belongs to the honey eaters, and goes under the name of blue-cheeked honey-eater. These birds often congregate upon thickly flowered branches and suspend themselves in every conceivable position. They are scientifically called Entomyza cyanotis.

Bluefields River, a river of Nicaragua flowing into the Pacific Ocean. It is joined by the Escondida, and empties itself into Bluefield's Bluff. The tn. of Bluefields is within a few miles of its mouth. The river is about

50 m. in length.

Blue-fish, a fish belonging to the family Scomberidæ. It is characterised by the absence of detached finlets, isolated dorsal spines, and lateral armature of the tail. It has two dorsal fins. The E. coast of N. America is its only home. It is blue on top and whitish below, while a large black spot is seen at the base of the pectoral fins. Its food is other fish of smaller size; and it attains a length of three to five feet.

Blue-gowns, a term given to Scottish paupers. It originated from beadsmen who in return for a small annuity were employed by persons desirous of their efforts in prayer. On the king's birthday each beadsman received a blue cloak, a loaf of bread, a bottle of ale, and a penny for every year the king had lived. Attached to the gown was a medal which bore the message 'Pass and Repass,' which practically authorised their mendicancy. The practice was stopped 1863, and the calling has become extinct.

Blue-grass, a grass found in Europe and N. America. It is permanent, and has a great value as pasturage. The property of its creeping rootstalks causes it to form thick turf. It is noted in Kentucky. Another name is June grass.

Blue Island, a vil. of Cook co, Illinois, U.S.A. It has copper works and extensive brick yards. Pop. 3000.

and extensive brick yards. Pop. 3000. Blue Jay, or Cyanocitta, is an American genus of the Corvidæ, or crow family. C. cristata is a beautiful bird, the plumage being blue above, white beneath, and variegated with black and white Like other members of its family it is a great thief, and in the spring it eats both the eggs and young of other birds, though in the summer it feeds on fruit and insects. It has a harsh and unmelodious voice.

Blue John Mine, a cave of many chambers in Derbyshire. It is situated in Tray Cliff in the N. of the co. W. Castleton is 1½ m. distant.

Blue Mountains: 1. A spur of the

Dividing Range of mts. in New South Wales. They run almost parallel with the coast about 80 m. from it. passage was found over them leading to the Bathurst Plains in 1813. Mt. Beemarang, 4100 ft., is the highest point. Parts of the roads which cross them are 3400 ft. ahove sea-level. Great engineering obstacles in the construction of a railway over them have been overgome. Caves exist of great size, those of Jenolan being notable. 2. A range of mts. in Oreron, U.S.A. It extends from N. to S. passing through the co. of Umatilla. The mts. are composed chiefly of granite, and their slopes are covered with great forests of pine and fir. 3. A range of mts. in Jamaica, whose highest peak is West Peak, 7105 ft. The alt. of this system, whose main chain extends from E. to W. varies Letween five and seven thouvaries letween five and seven thousand feet. 4. (Kittatinny) A long mt. system of Pennsylvania and New Jersey, forning part of the Appalachian system. It stretches from Orange co., New York, traversing the counties of Sussex and Warren in New Jersey. At the Delaware Water Gap the R. Delaware crosses the mts. Their structure is largely of rocks belonging to the Silurian period. belonging to the Silurian period.

Blue Pill, a mercury preparation of considerable therapeutic value. may be propared by rubbing 2 oz. of mercury with 3 oz. of confection of roses and adding 1 oz. of powdered liquorice. Mercury in this form is active, and produces marked effects: the blood corpuscies are increased in number, the blood is improved temporarily, and sources of irritation in the intestines are quickly removed. It is therefore useful in what is usually called biliousness, but its continued administration is generally not ad-

visable.

Blue Ribbon is the badge of all total abstainers, who at one time styled themselves the B. R. Army. The army commenced its career in 1878 in America, and extended to Britain. The term probably originated from the B. R. badge which was worn by each Knight of the Garter. The term is used also when speaking of some prize, as, for instance, the 'Derby' stakes. Blue Ridge, the easternmost chain.

of the Appalachian Mts. of Virginia and Carolina. It is famous for the Lei splendour of its scenery. Its highest in point is the Grandfather, in N.

Carolina, 5897 feet. Blue Shark (Carcharias glaucus), a native of tropical seas, but a frequent visitor in warm summers to the English Channel, where it is detested by the fishermen, as it destroys both fish and nets. It is generally 6-12 ft. long.

Blue-stocking, a term applied to ladies of learning and literary accomplishments; especially those who air their erudition in a manner pedantic and unwomanly. About 1750 a literary circle was estab. in London consisting of ladies and gentlemen. among whom was the distinguished Mr. Benjamin Stillingfleet, who were regularly blue stockings-hence the name. The name has been adopted in France and Germany,

Blue Suns. In Aug. 1883 a series of tremendous volcanic explosions occurred in the Sunda Straits; the Krakatoa Mt. was completely blown away, leaving a cavity of 1000 ft. deep, and the contour of the straits was changed for many niles. The darkness caused by clouds of smoke, ashes, and mud was so great that at Batavia, 100 m. distant, lamps were lit at mid-day. It was estimated that dust, stones, and mud were projected to a height of 17 m. But far above these the finer particles and sulphurous gases were carried westward by atmospheric currents, spreading also N. and S., and reaching in a few weeks all round the world Unnoticeable during the day, they produced a wonderful effect at sunset, the sun itself appearing of various strange colours, blue, green, coppery, etc. This curious phenomenon was re-marked everywhere within 30 to 40 degrees from the equator.

Blue-throat, sometimes called Bluebreast, is a bird closely resembling the nightingale, and possesses beauty of form and voice. Its ability to imitate the songs of other birds earned for it a Lapland name meaning a hundred tongues. The throat and upper neck are bright blue. The females are less conspicuous than the males. As a bird of passage it is known in many parts of Europe. Blue-wing, or Querquedula discors,

is a species of Anatidee, and is often called the blue-winged teal. It is a brilliantly coloured bird with bright blue wing-coverts. It is a native of N. America which migrates in winter to S. America.

Blum, Hans, a Ger. author and 1841. Edu-Leipzig and . Reichstag.

arrister at '*Paheim* ·9 ed. of his

Grfather; Die Lügen unsrer Sozialdemo-kratie; Furst Bismarel; und seine Zeil; Das erste Vierteljahrhundert des deutschen Reichs, 1896; Die deutsche Revolution, 1848-9; Aus dem tallen Jahr; Eigene Lebenserinnerungen, 1907. B. also wrote drama and fiction, including Die Ueberbande.

Blum, Robert (1807-48), a Germany popular songs, of which the politician, born at Cologne of poor parents. He was at first engaged in manual labour as an artisan, but though self-educated he later (1831) became secretary and cashier to the Leipzig theatre. Here his literary career began, and in 1840 he became manual self-educated he later (1831) here we will be the career began, and in 1840 he became Military Academy. Member of the prominent as the founder of the general staff and chief of the staff prominent as the founder of the Schillerrerein. In 1845 he was a leader in the German Catholic movement, and during the stormy scenes which took place during the revolu-tion he did much to control the mob. He was elected member of the Frankfort National Assembly, where he was the chief leader of the Left. In 1848 he was sent to Vienna, as bearer of a congratulatory address from the Left to the people of that city on their revolution. He himself took arms in it; was arrested and shot, Nov. 9.
Blumenau, a Ger. colony in Santa

Catherina, Brazil; on R. Itajahy, 60 m. N.W. of Disterro. Founded in 1852. Healthy and fertile. Pop. 30,000. The cap., B., is the seat of a Ger. consul. Pop. 5000.

Blumenbach, Johann Friedrich

(1752-1840), Ger. naturalist, born at Gotha; educated at Jena and at Göttingen, where he became extraordinary professor in 1776 and ordinary professor in 1778, remaining at ary protessor in 1778, remaining at the university for about sixty years. During that time he lectured on natural history, anatomy, medicine, and physiology, and made researches of the greatest value. In 1785, and therefore before Cuvier, he estab. the dependence of zoology on comparative anatomy, and also made important contributions to ethnology. He risited England in 1788 and 1792, and visited England in 1788 and 1792, and his jubilce in 1825 was made an international celebration. He resigned his professorships in 1835. His works include: De Generis Humani Varietale Nativa. 1775; Manual of Natural History, 1780; Institutiones Physiologica, 1787; Collectio Craniorum Gentium, 1790 - 1828; DiversorumManual of Comparative Anatomy and Physiology, 1804, etc., many of which were trans. into sev. languages. He was very popular both as an author and a lecturer.

Blumenbachia is a S. American genus of Loasacee with a hairy fruit which becomes attached to the coats of wild animals and thus distributes

the seed.

Blumenthal, Jacob von (Jacques), Ger. pianist, born at Hamburg, 1829. After studying under Grund (Hamburg), Bochlet and Sechter (Vienna), and Herz and Halévy (Paris), he came to London in 1848. Here he was appointed planist to Queen Victoria,

general staff, and chief of the staff, of Schleswig - Holstein army, 1849. He served in the campaign against Denmark, 1864, and under Crown Prince Frederick William in Austrian Campaign in the same capacity. was chief of the staff to Crown Prince of Prussia in Franco-Prussian War (1870-1), being present at the surrender of Sedan and the siege of Paris. Later he commanded Fourth Army Corps, with head-quarters at Magdeburg, becoming general of infantry, 1873. In 1888 created fieldmarshal by Emperor Frederick III.; inspector-general of Fourth Division.

Blundeville

Blumenthal, Oskar, Ger. dramatist and satirist, born in Berlin, 1852. Founder and manager of Lessing Theatre there (1888-97). Among his light, popular comedies are: Der Probepfeil: Die grosse Glocke; Der schwarze Schleier, 1891; Heute und Gestern and Im weissen Rössel (both with Kadelburg as were sev. others); the serious dramas, Der töte Löwe and Der Schwur der Treue, appeared 1904-5. B. also wrote sketches, epigrams, and satires, including Allerhand Ungezogenheiten; Gemischte Gesellschaft, 1877; Aus heiterm Himmel, 1882.

Blunderbuss (perverted form from Dutch donder, thunder, and bus, gun, original, box), a short gun with a large bore, firing a number of balls or slugs. Its name may have been perverted to 'blunder' because practically no aim is taken with it. At short range it can do much damage among a number of objects. It is now

obsolete.

Blundeville, Randolph de, Earl of Chester (d. 1232), a warrior and statesman, succeeded as Earl of Chester in 1180. He married Constance, widow of Geoffrey, son of Henry II., in 1187. He joined in Richard's interest in the size of Vet. Richard's interest in the siege of Nottinghamin 1194, accompanied Richard to Normandy, quarrelled with Constance, and imprisoned her in the castle of St. John Beveron in 1196. A few years afterwards he married Clemence, sister of Geoffrey, accompanied John abroad in 1199. He led armies engaged in Welsh wars and accompanied John to Porton in 1214. He took John's, and later Henry III.'s side against the barons in 1215, and together with Full: de Bréauté. stormed and plundered Worcester in and soon became well known as a com-poser and teacher of music. He wrote of Lincoln, and the following year he went to the Holy Land. joined in the siege of Damietta in Returning home he described the royal party and plotted unsuccessfully with De Bréauté to surprise the Tower and obtain the dismissal of Hubert de Burgh, but ultimately submitted. He took part in the siege of Nantes in 1230, and was left in Brittany with Aumâle and William Marshall in charge of the army. He re-

turned to England in 1231. Blunt, John Henry (1823-84), a theologian and priest, was born at Chelsea, and was for some years en-Cheisea, and was for some years engaged as a manufacturing chemist. In 1850 he went to Durham University, being ordained deacon two years later. In 1868 he was appointed Vicar of Kennington, and in 1873 he received the crown living of Beverstone. His works include an annotated edition of the Book of Common tated edition of the Book of Common Prayer (1867), History of the English Reformation trinal and 870).

and a Dict Blunt, John James (1794-1855), an Eng. divine, born at Newcastle-under-Lyme, and educated at St. John's College, Cambridge. In 1816 he graduated fifteenth wrangler and obtained a fellowship. Till 1834 he held curacies in Shropshire, but at that some years later he became a leading became rector of Great Oakley, Essex. In 1839 he was made Lady Margaret professor of Divinity at Cambridge, and in 1854 he was offered, but declined, the bishopric of Salisbury. His best known work was Undesigned Coincidences in the Writings both of the Old and New Testaments (1833). See Professor Selwyn's

Memoir of him (1856). Blunt, traveller

worth House, Number of Francis Scawen B., and was edu- cised by the nervous system over the cated at Stonyhurst and St. Mary's, Oscott. From 1858 to 1869 he was in the Diplomatic Service. In the latter year he married Lady Anne Noel, daughter of the Earl of Lovelace and grand-daughter of Lord Byron. In 1872 he succeeded to the Crabbet estates on the death of his In the elder brother. He then travelled for some years in the E. with Lady B., visiting Arabia. Syria, Algeria, Egypt, Persia, etc., and some of these voyages are described in books by Lady B. In 1885 and 1886 he unsuccessfully contested Cambridge in the Home Rule interest, and in 1887 he was arrested and imprisoned for two months in Ireland, in connection with on Lord Clanricarde's agitations estates. His best known vol. of poems is the Love Sonnets of Proteus (1880); and his most considerable historical work The Secret History of the English

Here her occupation of Egypt. Among his other works may be mentioned: The Future of Islam, 1882; The Wind and the Whirlwind, 1883; In Vinculis, 1889;

Esther, 1892; Griselda, 1893.

Bluntschli, Johann Kaspar (1808. 81), Ger. jurist, was born at Zurich, and studied at the universities of Berlin and Bonn, at the latter of which he graduated LL.D. in 1829. He then returned to Zurich and took a prominent part in the political war which was then disturbing Switzerland. He became professor of law at Zurich University, and became also a member of the parliament. Here he was soon recognised as leader of the moderate Conservative party. The impossibility of bringing about a general accept of bringing about a general accept ance of his views on gov, led him to resign, and in 1848 he went to Munich, where he became professor of constitutional law. Here he pub. his chief work on jurisprudence, the Allgemeines Slaatsrecht (5th ed. 1876). In 1861, B. 1 of political

where he aga It is arena. begins to rank as one of the greatest authorities 1873 he of Internatio and member of the Protestantverein. Among his works are: Geschichte der Republik Zürich, 1847; Das moderne Kriegsrecht, 1866: Das moderne Völkerecht, 1868.

Blushing is a sudden suffusion of blood over the skin, caused by sensa-tions of shame or modesty. Usually it affects only face and neck, but among savages sometimes arms and ็กไร0. It produces heat and a discomfort, and serves to

the intimate control exer-

blood.

ood.
Blysmus is a genus of Cyperacen included in Scirpus. B. comnow included in Scirpus. pressus is found in boggy pastures of Scotland and England; B. rufus inhabits marshes near the sea.

Blyth, scaport of Northumberland, England, 9 m. E.S.E. of Morpeth, at mouth of R. Blyth. It exports the conl mined in the dist., and does some shipbuilding. It is becoming known shipbuilding. as a watering-place. Pop. (1991) 5472.
Blyth, Sir Arthur (1823-91), Premier

- and aducated

to engaged

as an ironmonger in He became member of business Adelaide. Adelaide Chamber of Commerce and member for Yatala district in the Legislative Council in 1855. He was member for Sumeracha in the first elected council in 1857 and 1870; commissioner of works for ten days in 1857 and again from the middle of 1858 to the middle of 1869; Commissioner of Lands and Immigration, 1864-5; Chief Secretary and Premier, 1866-87. He was again elected Premier in 1871-2 and 1873-75. He was member for N. Adelaide in 1875 and Agent Course for the in 1875, and Agent-General for the Colony in England in 1877. He was Eventually B. crossed to Africa and created K.C.M.G. in 1877 and C.B. was killed while warring in that

Boa, name popularly given to any of those large snakes of America and the Old World which, having no poison fangs, kill by constriction. Strictly the term applies only to the New World Constrictors, the name Pythons being proper to the others.



The Boide are distinguished from the Pythons by the presence of teeth in the premaxille and the absence of supraorbital bones. Both are large in size, with expansible gape and prehensile tails; moreover they possess traces of the pelvis and bones of the hind legs, which appear as small clawlike spurs on each side of the vent. The commonest of the species is the Boa constrictor, about 12 ft. in length, brownish-grey in colour with lines and blotches. The B. attacks even large mammals, crushes the bones of its victim by pressure, covers it with saliva, and swallows it whole. A long period of torpor follows. Most of the boas bear their young alive.

Boabdil, from the name Abu Abdullah, was the last Moorish king of Granada, called also El Chico, which means 'The Little.' In 1482 his father, Abu'l Hassan, was dethroned and

Commissioner of Works for ten days banished from the country, and B. in 1857 and again from the middle was proclaimed king. In 1483 he invaded Castile, but was captured at Lucena, and became tributary to Ferdinand and Isabella of Castile. After that he spent several years in warring against his father and his uncle. In 1492 the King of Castile, after besieging Granada, captured it. country. El Ultimo Suspiro del Moro ('the last sigh of the Moors') is shown as the place from which B. last viewed Granada. See J. A. Condé, Historia de la dominación de los Arabes en España Sacada de varios manuscritos y memorias Arabigas, 1820.

Boac, or Boag, a tn. on W. coast of Marinduque Is., Philippines.

over 14,700. Boaden, James (1763-1839), journalist, editor of the Oracle newspaper in 1789. He studied at the Middle wrote several successful plays, and in 1796 published an exposure of the Ireland Shakesperian forgeries. In 1851 he published a work Shakespearian on sonnets, identifying Mr. W. H. with William Hubert (afterwards Lord Pembroke). He also wrote biographies of actors and actresses.

Boadicea. Strictly the name should be Bondicca, a name which in Celtic is practically the equivalent of Victoria. She was the wife of a British king named Prasutagus who seems to have ruled over the Iceni in E. Anglia. Dying, he made his wife and daughters joint heirs with the Rom. emperor to his property, probably from a mistaken idea that this would save them at least some share of his possessions. In place of this, however, his queen was insulted, his daughters outraged, and his subjects goaded by insult and oppression into rebellion. Suctonius Paulinus with the legions suppressing the Druids of Mona. E. Anglia burst into the flame of rebellion. St. Albans and Colchester were annihilated, London razed to the ground, and the storm of British fury swept all before it. Paulinus returned, and tried to stem the rebellion. Collecting all his forces, save the legion from Caerleon whose general failed to obey orders, he met the Britons at some unknown place, but probably a place between London and Chester, and practically annihilated them. B. took poison, her troops were cut down practically to a man, and the Romans crushed all life out of the rebellion. Henceforward there was peace in Britain, but to a very great extent the peace of desolation. The Romans, however, shortly after introduced more humane methods

to his two disciples, James and John, the sons of Zebedce. See Mark iii. 17. The word is interpreted in the Bible —The B. of Agriculture and Fisheries as 'sons of thunder,' and was pro- has been in existence since 1889. It bably applied as denoting strength of

character and zeal.

Boar, Wild. The commonest species native in Europe, and is now found over Europe, N. Africa, and parts of It was originally common in the British Isles, and traces of it are found at Chartley Forest, Staffordshire, as late as 1683, and it survived even later in Ireland and Scotland. It is still found in most parts of the continent, where it is common in damp and marshy ground. Bs. in early times proved very destructive to crops, for they are voracious and omnivorous, and feed chiefly by night. Solid benefit was, therefore, to be gained by hunting them, and their ferocity gave the business the touch of danger necessary to make it a sport. Under the Norman kings the B. was one of those beasts the killing of which without right was punishable B.-hunting was then a by death. lordly sport, and a vivid account of its pleasures is given in the fourteenth work of Sir Gawayne and the Green was then accounted a great delicacy, and its entrance at the Christmas festivities was greeted with elaborate ceremonial and many carols. In heraldry, it is a well-known cognisance. Other species of Sus are known, the Sus villatus, the Sus Verrucosus, and the Sus Barbatus, all Asiatic.

Board. The name which is generally given to a body of persons appointed jointly to control some public office, bank, or railway. Thus, for example, when referring collec-B. of Directors. Similarly the Lords of the Treasury form the B. of Treasury. whilst the name is in common em-

into their treatment of the conquered this name are the B. of Agriculture races.

Boanerges, a name given by Christ B. of Education, the B. of Works, and the Local Government Board.

Board of Agriculture and Fisheries.

The B. of Agriculture and Fisheries owed its origin to a special department of the Privy Council created in Boar, Wild. The commonest species is the Sus Scrofa, larger in size than the modestic pig, and characterised the immediate cause of the country. The immediate cause of the appointment, and short, thick, woolly hair as it was called, was the outbreak of closely interspersed with bristles, which on the neck form a thick England during the middle of the mane. These bristles are brownish sixtles of last century. In 1883 the black in colour, the shorter hairs being term agricultural was applied to the committee, and in 1883 the Branch of the shorter hairs being term agricultural was applied to the committee, and in 1893 the Branch of the shorter hairs being the Branch of the country. 1865 to look after and control the black in colour, the shorter hairs being term agricultural was applied to the grey. The animal is about 3 ft. in committee, and in 1889 the B. was height, and far surpasses the domestic actually formed. The agricultural swine in strength and swiftness. It is interests of this country had long native in Europe, and is now found called for the agricultural strength. called for the appointment of such a board, and these interests are now vested in the B. itself. The B. is controlled by a president, who is a responsible minister and who some times holds cabinet rank. His ap pointment is purely political, and changes naturally with a change of government. The members of the B. are the President of the Council, the Secretaries of State, the Secretary for Scotland, the first Lord of the Treasury, the Chancellor of the Exchequer, and the Chancellor of the Duchy of Lancaster. The presidency carries with it a salary of £2000 per annum, and is at present occupied by a minister holding cabinet rank (1913). In addition, a Parliamentary Secretary, who has a salary of £1200. The B. has the responsibilities entailed by the Contagious Diseases Act, and acts quickly in order to prework of Sir Gawayne and the Great these diseases amongst cache, as was hunted on foot these diseases amongst cache, as was and on horseback with dogs, most exemplified in 1912, when the dreaded commonly B.-hounds. The B.'s head foot and mouth disease broke out. It controls also the agricultural, hortises and foresting interests of vent the outbreak or spreading of these diseases amongst cattle, as was cultural, and foresting interests of It has also indoor the country. and outdoor animals departments, a fisheries department, a veterinary department, and an educational department, which is now being developed much more rapidly than formerly. It controls also the Ordnance Survey of the United Kingdom.

Board of Trade.—This B. also had its origin in a departmental committee of the Development

mittee of the Privy Council, although tively to the directors of a railway or such a B. can be traced practically a bank it is customary to refer to the back to the time of Edward I. Councils and committees often advised the Crown on the regulation of trade and commerce, but these counwhilst the name is in common curployment, having the same meaning, cils had no permanence until the
in such terms as the B. of Guardians, period of the Commonwealth. They
the Local Government B., the B. of
Trade, and in Scotland the School B. early reign of Charles II., but fell into
The chief State departments bearing disuse towards the end. The restora-

tion of the coinage in 1695 was due minister, who has usually a seat in to the work of Locke, who had been the cabinet. The head of the B. is the to the work of Locke, who had been appointed secretary of the B. of Trade, which was revived by William III. The B. underwent many vicissitudes during the 18th century. Finally, towards the end of the century, it assumed very much the same form as it has at the present day. The growth of commerce and industry during the 19th century, however, raised the status of the president of the B, to an equality with the principal secretaries of the State, but their secretaries of the State, but not recognised their status was not recognised officially until 1909, when by the Board of Trade Act the salary of the president was brought up to £5000, the same as that paid to the secre-taries of State. In addition to the president there is a permanent secretary, a parliamentary under-secrotary, and four assistant secretaries. For the past thirty years the president has with few exceptions always been of cubinet rank. The principal members of the cabinet form the B. It has many departments, e.g. the commercial, labour, and the statistical department, the railway department, the marine department, the harbour department, the finance de-partment, and the bankruptcy de-partment. Until 1903 it had also a fisheries department, but in that year its duties in connection with fisheries were passed over to the Board of

Agriculture.

Board of Education.—This B. had its origin in the appointment in 1886 of a minister responsible to parliament. This office was originally held according to the provisions of the Bill passed in the above-mentioned year, by the vice-president of the Committee of Council on Education, and at the same time as a minister was made responsible the department of science and art was taken from the hands of the B. of Trade and given to the control of the committee. The Board of Education Act of 1899 abolished this office of vice-president of the council and created a president of the B. of Education, which was the department of education and of science and art united in one committee. In addition to the president there was also a parliamentary secre-tary appointed. The B. underwent a still further change in 1902, when it divided into three definite control respectively. divisions, to primary, secondary, and technical education. The president is usually of cabinet rank, and has a salary of

Board of Works and Public Buildings.—A development of the office of

first commissioner. The duty of the B. is to look after all public buildings. royal palaces, and parks. The first commissioner has a salary of £2000, and has also a representative in the House of Commons, also with a salary of £2000.

Boarding, with regard to naval tactics, is a term used for an assault made by one ship upon another. It is now, however, not much practised. B. may be performed on different parts of the ship according to the

position of the ships.

Board of Trade Unit, the unit of electrical current legally established in the United Kingdom. It is approximately one-tenth of the theoretical ampere (q.v.), and is defined as that amount of continuous unidirectional current which when flowing through a neutral solution of silver nitrate deposits on the cathode or negative pole 001118 of a gramme of silver. regards alternating currents, the unit measured as being the current which produces in a fine wire the same amount of heat in the same time as a unit of continuous current as determined by the silver-nitrate test.

Boar-fish (Capros), genus of fishes chiefly found in the Mediterranean. It has a flat oval body, similar to that of the related John Dory. Its body is carmine, with seven transverse orange bands on the back, and the name is derived from its projecting hog-like

snout.

Boarmia, a genus of lepidopterous insects of the family Geometridæ. All the species of these moths are of an ashy colour, or white minutely dotted with brown, and the large when at rest, are placed horizontally. Many species are found near London.

Boase, Charles William (1828-95), historian, B.A. and fellow of Exeter College, Oxford, in 1850, M.A. in 1853; was ordained deacon in 1855. During years 1859-69 he was lecturer in Hebrew at Oxford, and 1851-94 in modern history. He was university reader in modern history during the years 1884-94. In 1884 he was made hou, secretary of the Oxford His-torical Society. He published historical works relating to Oxford and other writings, including a translation of Ranke's History of England.

Boat (O.E. bát), a comparatively

small open vessel used for travel on the water, generally propelled either by sail or by oar. The term 'ship 'is generally reserved for larger vessels. The origin of vessels for conveyance on water may doubtless be traced to commissioner of woods and forests, a double genesis. When primitive It is now held by a responsible man wished for some such thing, two

means must have suggested them- 30 ft. long, 4 ft. beam, and various selves to him. He could hew down a skiffs, eights, fours, gigs, and punts. tree and hollow it out, or he could collect wood and bind the pieces together. Hence arose the 'dug-out. still so common a B. among savage tribes, and the raft, the construction of an elaborate form of which is described at length in the Odyssey. From this last come the junk and punt and all the various kinds of flatbottomed craft. Another stage in development may be the coracle of the ancient Celts, consisting of a wicker framework over which skin is stretched. By another step, the framework would be made stronger and the covering made of wood. and the covering made of wood. There are differences in the ways of studied Hebrew and ablinical vriblaying on the planks in the modern small B., viz., the planks may be laid, edge to edge, so as to present a smooth exterior; the B. is then said to be carvel-built; the pland overlap, and the B. is descrived by the pland overlap, and the B. is descrived by the pland overlap, and the B. is descrived by the pland overlap, and the B. is descrived by the pland overlap, and the B. is descrived by the pland overlap, and the B. is descrived by the pland overlap, and the B. is descrived by the pland overlap, and the B. is descrived by the pland overlap, and the B. is descrived by the pland overlap, and the B. is descrived by the pland overlap, and the B. is descrived by the planks of types of Bs. are countless in n.... 604-50), physician, for they vary in every part of the born at Gorcum, Holland. He obworld and in the same part for every tained his M.D. at Leyden University different class of work. Some for in 1628, and afterwards settled in needed swift, some roomy, some for London. He became physician to the pleasure, some for rough weather; king. In conjunction with his brother the enumeration is endless. In the royal navy the following Bs. are used, though here, as in other branches of service, steam and the motor are taking the place of wind and oar, which now propel only the smallest Bs. The pinnace, a B. used for the sub-officers, is generally about 35 ft. long, carrying eight oars. The cutter, about 30 ft. long, carries more men and has greater breadth. The gig is used on expeditions requiring speed. It is expeditions requiring speed. It is narrower than the pinnace, is 30 ft. in length, and weighs about 8 out. The dinghy is a small B. of 3 cwt. about 13 ft. long, and easily rowed by two men. Bs. vary considerably in shape and size round our coast. On the Thames they are lightly built, but on the coast the necessity of pulling them up over rough ground demands that they should be strong demands that they should be strong and generally clinker-built. Round the coast of Kent and Sussex short square-sterned skiffs are in favour, and further W. along this coast the Bs. get deeper and larger, and the

carrel-build is still common. In the N.E. of England and at the N. of Scotland various old types of Bs. survive. The coble, for example, is a shallow-built, flat-bottomed B, with

These are of varying degrees of lightness, and this type finds its best expression in the racing eights seen in the Oxford and Cambridge boat race.

Boat, Life, see Life-BOAT.
Boatbill, or Boatbilled Heron, is the popular name of Cancroma cochlearia, a bird belonging to the Ardeidre, or heron family, but differing from allied species in its broad, flat, brown bill. It is a night-flying bird, feeds on fish

and worms, and is a native of Brazil. Boate, Arnold (1600-53), Hebraist, was brother of Gerard B., the physician. Arnold studied at Leyden and obtained his medical degree. He also

he produced a treatise depreciatory of the Aristotelian philosophy in 1641. In 1649 he was doctor to the hospital at Dublin. He also wrote Ireland's Natural History, which was published posthumously

Boat-fly is the name of sev. species of hemipterous insects of the family Notonectide. They are aquatic, swim on their backs, live on animal matter, hibernate in mud, and when they dive into water carry with them

a supply of air. Notonecia glanca, the water-boatman, is found in Britain. Boat-plug is any conical piece of wood or cork which is used to fit into a hole in the bottom of a boat. This hole is made for the convenience of letting out of the boat the waterwhich may be rain or sea water-that has made its way into it. When the boat is hoisted the plug is removed, but it is replaced when the boot is lowered for use.

Boat Race, see Rowing.

Boatswain (pronounced 'bo'sun, from boat and swain, a servant), an officer in the royal navy, of warrant rank. In the days of sailing ships, he had charge particularly of the boats, rigging, sails, cables, anchors, flags, and cordage. It was his duty to examine these carefully, especially when the vessel was in dock, to keep them in a state of repair, and to make shallow-built, flat-bottomed B. with a very curious rudder, built for launching from the beach in rough when the vessel was in dock, to keep weather. These show traces of Norse and Dutch influence. Pleasure Bs. of most kinds may be seen on the Thames, and the following are easily noticeable: the Randan skiff about their duties. He shared in the work of flows into the Oder after a course thoship, and took a place in one of the of 160 m. at the town of Crossen. watches. He himself gives no orders, Boblingen, a th. of Germany, but acts as the officer of the first situated in the state of Würtemberg, lieutenant. His work has of course It is situated 11 m. to the S.W. of been considerably modified by the Stuttgart, and has a pop. of 3826. general use of steam.

Boavista, in Brazil, 320 m. S.W. of Georgetown. It lies in the central part of N. Brazil, on the banks of the

Rio Branco.

Boavista, or Bonavista, an is. of Africa, the easternmost of the Cape Verde group. It has a railway and three ports—Porto Sal Rey on the W., Porto do Norto on the N., and Porto Curralinho on the S. The soil is not fertile, and the cultivation is generally neglected. Area 250 sq. m. Pop. about 4000.

Boaz, a Bethlemite from whom Jesus Christ was a descendant in the direct line. He married Ruth, and they were the great-grandparents of

David.

Boaz and Jachin (see 1 Kings vii. 21), the names given to two brazen pillars in the porch of Solomon's

temple in Jerusalem. Bobadil, Captain, in Ben Jonson's comedy, Every Man in his Humour. He is a bragging, blustering fellow. Bobbil, a tn. of British India. It is situated in Madras presidency, 36 m. from Chicacole to the W.N.W.

Bobbin, a small wooden or metal roller, flanged at both ends (rarely at one only), and bored through the axis, so that it may be placed on a spindle. The commonest form is the on which ordinary sewing spool thread is wound, and an example of the metal B. is to be found in that which carries the thread in a sewing machine. Bs. of various sizes and shapes are used for the different stages of spinning flax, wool, yarn, etc., the largest being those used for the slubbing frames, where the cotton passes from the lap shape in which the carder has left it into loose These are often 15 in. long. strands. Paper tubes are now often used where Bs. were originally employed. lace-making and some other industries a peculiar type of metal B. is used.

Bobbio, a tn. and episcopal see of Lombardy, Italy, in prov. of Pavia. Its origin is traced to a monastery erected by St. Columban in 612, whose famous library, now mostly at the Vatican, the city once possessed. Other parts of the library are at Milan and Turin, but many important but many important documents still remain at the cathedral. Pop. (1901) 4848.

Bober, riv. of Silesia and Branden-

burg, Germany, the chief trib, of the Oder. It rises on the N. side of the Riesengebirge, and after Landeshut, Bunzlau, and

Germany,

Bobolink is the name given to a N. American bird of the family Icteridæ; it is the Icterus acripennis of Bonaparte and Dolichonyx oryzivorus of Swainson. It differs from the orioles or starlings in having a long middle toe and pointed tail feathers, and is noted for its curious song. Others of its names are rice-troopial, reed-bird,

skunk-bird, and rice-bunting. Bobrek, a tn. of Prussia in the prov.

of Silesia; pop. about 5000.

Bobrinets, a tn. of Russia, about 120 m. N. of Kherson; pop. 14,000.

Bobrov, Semen Serægevitch (d. 1810), Russian poet. His only work of importance is Khersonida, a poetical history and description of Taurida in South Russia.

Bobruisk, tn. in the gov. of Minsk, Russia, formerly an important fortress. It is on the Beresina and possesses a railway station. It was unsuccessfully bombarded by Napoleon in 1812, and its fortifications were then increased. They have now been abolished as antiquated. Pop. (1897) 35,177.

Bocage was formerly the name of two dists. in France; the first, Norman B., formed the middle part of Bessin below the Orne, but is now part of Calvados. The second, Vendean B., formed part of the prov. of Poitou, but now is included in the dept. of Vendée.

Bocas del Toro, or Boca del Toro, a tn. and port of Panama, situate in the lagoon or bay of Chiriqui. The bay forms a good natural harbour and the surrounding country is very fertile, producing fruits, cocoa-nuts, and

India-rubber. The pop. is about 5000. Boccaccio, Giovanni (1313-75), It. writer, born at Paris and apprenticed to a merchant there, but disliking commerce, settled down to verse-writing at Naples. Here, about 1334, he fell in love with Maria d'Aquino, said to have been a natural daughter of King Robert of Naples, who appears in many of his works as Fiametta. went to Florence in 1340, and returned there in 1349 after spending some years in the Romagna. In 1350 he formed a friendship with Petrarch. by whom he was much influenced. The latter part of his life was mainly spent at Certaldo, but in 1365 he went on an embassy to Avignon, in 1367 on one to Rome, and in 1368 visited Petrarch. His works, in which he was an ardent exponent of the new learning, were numerous and varied, passing ing, were numerous and varied. He Sagan, is best known by the Decameron,

1348-58, a collection of prose tales, in retirement at Pisa till 1356, when supposed to have been told by cour- he was re-elected. He is said to have tiers and ladies in retirement during the plague at Florence in 1348. This work showed an enormous advance in style end fiction:

pean

extent. He also wrote numerous romances and pastorals in verse and prose, and several Latin treatises.

Boccage, Manoel Maria Barbosa de (1765-1805), Portuguese poet, born at Setubal. Though from the beginning he showed a remarkable talent for versification, he entered the navy, and his adventures carried him as far as Brazil and the Indies. Before this, as Brazil and the Indies. Before this, received a pension from Frederick his numerous love affairs had given William II., King of Prussia. He is plenty of scope for the exc special gift, but on his retu the style of his verse had

poems are full of harmony. Though he wrote eclogues, idylls, epistles, songs, etc., it was in the sonnet that pianoforte. he excelled and gained a place about Bochart, the best writers of this genre in He also left a number of Portugal. unfinished tragedies and some translations. His works were published in

eight volumes in 1875-6.

Boccage, Marie Anne, Lady Fiquet du (1710-1892), a Fr. poet, wrote an imitation of Milton, entitled Le Paradis Terrestre, 1748. She went to Ternary to visit Voltaire, who praised her fulsomely, but whether the praise was sincere or not has been disputed. Her other works are La Colombiade, 1756; Letters Concerning Voltaire.

1770.

Boccalini, Trajano (1556-1613), an It. satirist, was governor of sev. tns. of the papal states between 1608 and 1611. He retired to Venice and spent his last years in writing poetry. He was hostile to the Spanish nation, and in fact the only gov. which he did not attack in his writings was that of Venice, for which he appears to have had an affection. His prin. work is News of Parnassus (Ragguagli di Parnaso), a satirical work dealing in a brilliant fashion with contemporary questions and personages, both private and political. An Eng. version of this, together with the sequel, La Pietrauel Paragone Politico, which was left unfinished by his was a left unfinished by his was left under his was le was left unfinished by him, was pub. in England by Henry, Earl of Monmouth. The story that he was sandbagged to death by a band of Spanish bravadoes has no foundation in fact; he died from the effects of colic and fever at Venice.

Boccanera, Simone, Genoese statesman of 14th century. He was elected iii. 220.
Doge of Genoa for life in 1339, but Bochnia, a tm. of Galicia, Austria-compelled to resign in 1344, and lived Hungary, about 25 m. by rail S.E. of

been poisoned. He gained numerous victories over the Turks, Tartars, and Moors.

Bocca Tigris (Portuguese form of the Chinese Hu-mun, tiger's mouth, part of the estuary of the Canton R. On an is. in it are the Bogue fort, taken by the British in 1841 and 1856.

Boccherini, Luigi (1740-1805), an fro:

wai art, and then to Paris. Hesubsequently went to Spain, where he was highly honoured by the king, and he also as a master of chamber r writing anything for the only one mass, the Stabat

satire. He was endowed with great Mater. His compositions include, powers of improvisation, and his however, duets, tries, quartets, quint tets, sestets, symphonies, and sonatus for the violin, the violoncello, and the

Bochart, Matthieu, French Protestant divine of the 17th century. He was the author of a Treatise against Relics and Diallacticon (pub. 1662), in which he advocated the union of the Lutheran and Calvinist sections

of the Protestant body.

Bochart, Samuel (1599-1667), a Fr. theologian and philologist, was pastor of a church at Cuen. He took part in 1629 in a discussion with a Jesuit named Veron, and worsted him. His Sacred Geography, which he pub. shortly afterwards, added so much to his fame that Queen Christina of Sweden invited him there. He went to Stockholm and remained there for a year, and on his return in 1653 was named a professor at the recently-founded academy of Cach, a post which he held till his death. He had a great reputation in the theologian, a geographer, a philosophic maturalist. His works great reputation in his time as a logist, and a naturalist. include: De Animalibus Sancta Scripture, 1663; Reply to the Letters of M. de la Barre, Jesuit, 1662, etc.

Bochmann, Gregor von, Russian painter, born at Nehat, Esthland (Esthonia), 1850. He is a landscape painter, and studied from 1868 at Düsseldorf Academy, having a studio there, 1871. He takes yearly studytrips to his native land, Holland, and Among his works are: Belgium. Sluice Church in Esthland,' 1874; Harvest Holland, 'Potato Harvest in hland,' Fishmarket at Royal, Esthland,' Wharf in Holland, 1878 (Berlin National Gallery), On a Country

Bocholt, a tn. of Germany in prov. of Westphalia (Prussia), on the riv. Aa. 12 m. N. of Wesel. Manufs. Aa, 12 m. N. of Wesel. Man of iron and cotton. Pop. 22,000.

Bochum, a tn. of Germany, prov. of Westphalia (Prussia), 35 m. N.E. of Dortmund. It is an important inetc., and has also breweries, felt and brick manufs. There are coal mines in the vicinity. Pop. of dismines in the vicinity.

Bockenheim, industrial suburb on N.W. side of Frankfort-on-the-Main. Böcking, Eduard (1802-70), a Ger. lawyer, horn in Trarbach. He was

appointed professor of law at Bonn in 1835, and wrote on many legal subjects. His pub. works include Notitia Dignitatum Utriusque Imperii in 5 vols., 1839-50, and Institutionen des Römischen Privatrechts. He also ed. the works of Ulrich von Hutten.

Böckingen, a tn. in the dist. of Heilbroun in Würtemberg, Germany;

pop. about 6000.

Böcklin, Arnold (1827-1901), Swiss painter, son of a silk-worker at Basel. In 1845 ho went to study at Düsseldorf, under Schirmer, who, recognising his talent, sent him later to study the works of the Flemish and Dutch school at Antwerp and Brussels. Going thence to Paris, he worked for some time at the Louvre, and afterwards resided for some years in Rome, where he married. He was very fond of studying nature in the Campagna, and his landscapes are mostly Italian in character and feeling. In 1856 he went to Munich, where his first great success, 'Pan among the Reeds,' was exhibited and bought for the Pinacothek. This and other mythological pictures gained him an appointment at the Weimar Academy, which he held for two years. In 1862 he returned to Rome, where he painted 'A Roman Tavern,' 'A Villa on the Sea-shore, and other fine pic-tures. Going back to Basel in 1866, he adorned the gallery there with painting some frescoes, besides 'Christ and the Magdalene,' and other pictures. From 1871 to 1874 he was in Munich, where, going be-youd the bounds of classical mytho-

Cracow; has salt and gypsum mines land tenure, better described now as in the vicinity. Pop. (1900) 19,049. | charter-land or deed-land. B. was folk-land which was allotted by deed to some person in private ownership by the king and council. It differs from the *Ethel* (Eng. homestead), which was land cut off from the folkland and made the perpetual possession of its owner and his descendants. dustrial centre, particularly of the and which depended on no charter iron and steel industries. It produces for its possession. B. could be held armour plates, machinery, wire-ropes, by the king or by ceclesiastics, and etc., and has also breweries, felt less frequently by a lay subject. It and brick manufs. There are coal was often granted in perpetuity to a was often granted in perpetuity to a church or monastery, for which it could be held in trust by a layman. During the lifetime of its owner it could be alienated or disposed of, but only by boc, as it had been received.

Bocskay, Stephen, Prince of Transylvania (1556-1606). He was the leader of a sycarsful rebellion egister.

leader of a successful rebellion against Rudolf II. of Hungary in 1604, and proclaimed Prince of Transylvania by the Sultan Ahmed I. Two years later a peace was concluded with Rudolf, granting freedom of religious worship to the Protestants of Hungary.

Bod (Boad), a trib. state of Orissa. India. It is bounded on the N. by the R. Mahanuddy. Its area is 2064 sq. m. B. proper is ruled by a native rajah. Its cap. is Bod, a tn. situated on the Mahanuddy. Its pop. is 108,868.

Boddam, a fishing vil. situated 3 m. S. of Peterhead, N.E. Aberdeenshire.

Pop. 1972

Eode, The Barons de, are known in England because of a claim for indemnity often presented before parliament. A certain de B., born of a baron of the Holy Roman Empire and an Eng. mother, was included among those who were to be in-demnified for confiscations at the time of the Revolution from the payment made by France in 1814. In 1852 the gov. refused to recognise the claim preferred by this man's son, because he was not a British subject and his lands had been held under German tenure.

Bode, Johann Elert (1747-1826), a Ger. astronomer, born at Hamburg, is famous for many astronomical publications. He was devoted to the subject from his early youth, and in 1772 was made astronomer of the academy at Berlin. In 1786 he was made director of the observatory made director of the observatory there, and he held this position till logy, he introduced such wonderful 1825. His name is best known as imaginary beings into his composition propounder of B.'s Law, on tions that they awakened much host the proportion of the respective tile criticism; however, in time their distances of the planets from the brilliant colouring and fine idealism sun. The law states that the proovercame opposition. Returning to portionate distances of the planets Italy, he worked at Fiesole and at from the sun is found by adding 4 to Florence, where he died.

cach term of the series 0, 3, 6, 12, 24, Boc-land (from A.S. boc, a book, i.e. etc., which omitting the first term book-land), an early Eng. method of forms a geometric series with 384 as last term. When he first advanced thisrule, which still remains empirical, it was found that a planet should occur between Mars and Jupiter, and a group has now been discovered there. The rule, then, holds good, excepting its application to Neptune, whose distance from the sun is less than B.'s Law requires. Among B.'s Law requires. than B.'s Law requires. Among B.'s works may be name? zur Kenntniss des gestir (1768),Sammlung

Tetschen. The two tns. are connected by bridges. Pop. of commune (1900) 10,872.

Boden-See, see Constance, Lake. Bodenstedt, Friedrich Martin von (1819-92), a German poet, journalist. translator, and dramatist, was born at Peine, in Hanover. After studying at various German universities. he was appointed tutor to the family of Prince Gallitzin at the city of Moscow, 1840. In 1844 he transferred himself to an extension of the formed himself to the family of the formed himself to the family of ferred himself to a new appointment at Tiflis in Transcaucasia. Here he devoted himself to a thorough study of Persian literature and of that of the Orient generally. From this sprang the most popular of his works, Die Lieder des Mirza Schaffy (1851), a vol. of original poetry which purported to be trans, from an eastern work. Its success in Germany was enormous, equal to the somewhat later success of Edward Fitzgerald's translation of Omar Khayyam's Rubaiyat in England. Its fame, translation of Omar Khayyam's Rubaiyat in England. Its fame, indeed, is great in most languages of Europe, for it has frequently been trans. In 1854, after some years sport in icompatitate. spent in journalistic work, he was made professor of the Slav languages at Munich. For some time he conat Munich. For some time he con-tinued at this subject, and trans. many works of the Slavonic authors. In 1858 he gave up this post and took the chair of Old Eng. During the years that followed, he pub. a translation of Shakespeare's plays and poems, and several other valuable the mint master. Word only survives works on Eng. literature. In 1867 he in the phrase 'not to care a bodle.' works on Eng. literature. In 1867 he left Munich and was employed till 1873 as director of the Court Theatre

"s voluminous

im Orient (1800).

Bodichon, Madame (1827-90), born In addition to the contributions Barbara Leigh Smith, the daughter which he himself gave, he also induced of Benjamin Smith, many years M.P. others to contribute largely, and in

Bodin, Jean (1530-96), Fr. philo-

ud economist, was born at Having studied law at Tusten (1776), Sammling
Tusten (1776), Uranographia (1801).
Bodegas, or Babahoyo, a tn. and the cap. of Los Rios in the prov. of king.
Bodenbach, a tn. of Bohemia, Austria, on R. Elbe, near the Saxon frontier, and on the opposite bank to Testesley. The two tree are connected delegate to the States-General of he himself became prodelegate to the States-General of Blois. In this assembly he defended with the greatest vigour and cloquence the rights of the people against all restrictions, whether imposed by king, clergy, or nobility. In 1581 he visited England as secretary to the Duc d'Alençon, when the duke was secking the hand of Queen Elizabeth. On his return the rest of his life was spent at Laon, where his influence was such that he persuaded the citizens to declare for the League in 1559 and for Henry IV. in 1594. He died of the plague. His greatest died of the plaque. His greatest work was the Six Livres de la Ré-publique, 1576, the first important attempt in modern times to construct a complete system of political science. His Methodus ad facilem historiarum cognitionem is the foundation of the present method of studying history. Other works of his are: Oratio de instituenda in republica Juventute, 1559; Universale Naturæ Theatrum, 1596;

> influence sur la société française, 1887. Bodle, or Boddle, an anet. Scottish copper coin of time of Charles II., worth about one-sixth of an Eng. penny, or twopence Scotch. Its name is said to be derived from Bothwell

and the Colloquium Heptaplomeres de abditis rerum sublimium arcanis, pub. 1857. Though so liberal in opinion as to be accounted an atheist, B. was a

firm believer in witchcraft. See II. Baudrillart's J. Bodin et son temps, 1853; Bardoux' Les legistes et leur

Bodleian Library. This public library of Oxford owes its origin to Sir Thomas Bodley. There had pre-'s voluminous Thomas Bodley. There had pre-les Caucasus viously been a university library upfe gegen de there, but this was reformed and en-und ein Tuy larged by the addition of numerous books by Sir Thomas Bodley in 1598.

Bodley a considerable amount of property to increase the library and to maintain it. His example found many imitators. and amongst the great patrons of the library may be mentioned Arch-bishop Laud, Lord Fairfax, Richard library Gough, Richard Rawlinson, and Rev. Robert Mason. The library is excelled by few in Europe, and its Oriental MSS, are probably unsurpassed in the world. It contains the most valuable of a solution of the country. The library has a Lofoden Isles. Pop. 253. now well over 750,000 vols. and over 40,000 MSS. By various copy of a printer of Saluzzo, in Piedmont. In No artificial light is allowed to be used

private secretary to the president of the Local Government Board. Has pub. a work in 2 vols. on France: Vol. i. The Revolution and Modern France; Vol. ii. The Parliamentary System; and in addition L'Anglomanie et les traditions françaises and The Compution of Educati VII. the The Coronation of Edward VII., the last work being written by His Majesty's command. He has also contributed papers and short writings.

Bodley, Sir Thomas (1545-1613), an Geneva and Merton College, Oxford. He was made a fellow of his college and in the years between 1580 and 1597 he was employed in various embassies to European countries. returned home in 1597, and spent the public library at Oxford. He was knighted at the accession of James I. He bequeathed almost all his possessions to the library, for further details concerning which, see Bodleian LIBRARY.

Bodmer, Johann Jakob (1698-1783). a Swiss poet and man of letters, was professor of history at Zurich from

1602 the library contained about by Lessing and others. B.'s works in-2000 vols. When Bodley died he left clude Noachide, 1752, an indiffernet poem in twelve cantos; Ancient Literature, 1746; translations, etc.; and he also pub. a Swiss Library and A Collection of Minnesingers.

Bodmin, co. tn. of Cornwall, 30 m. W.N.W. of Plymouth. It has some trade in agric. produce, and has numerous relies, including Roman remains. Pop. (1901) 5353.

Bodo (Bodoë), a small coastal tn. of Norway. It is situated almost opposite the S. extremity of the Lofoden Isles. Pop. 253.

ployed as compositor in the printing in the library, and the only part of. office of the Propaganda. In 1788 he was made head of the ducal printing the library in which this is used is in. the library in which this is used is in 'was made head of the ducal printing the Radeliffe Camera, added to the house in Parma, whence he sent out library in 1860, and now used as a some beautiful eds. of Gr., Lat., Fr., reading-room.

Bodiey, John Edward Courtenay preess constitute the best examples (b. 1853), au Eng. historian, educated known of It. typography, and are at Balliol College, Oxford, taking the eagerly sought after by collectors. Balliol College, Oxford, taking the eagerly sought after by collectors. Bodieve of B.A. in 1877 and M.A. in Bödtcher, Ludwig Adolph, (1793-1879. He was called to the Eng. bar 1874), Danish poet, was born and eduin 1874, and from 1882 to 1885 was cated at Copenhagen. For some time private secretary to the president of secretary to Thorwaldsen. He sneut

private secretary to the president of secretary to Thorwaldsen. He speut the middle period of his life in Italy. but died at his native town. poetical output was small, being entirely comprised in two volumes, but he takes high rank among northern lyric poets. His poems are chieffly love-songs, but all are remarkable for perfect delicacy and finish; like a delicate-toned violin they express the most sensitive impressions of the artist. His philosophy was that of Eng. diplomatist, was educated at the epicurean and quietist. See Gosse's Northern Studies, 1879.

Body Cavity, a term used in embryology to denote that portion of the embryo which ultimately develops into the pleural, pericardial, and peri-toneal cavities, that is to say, those rest of his life in augmenting the portions bounded by the membranes public library at Oxford. He was enclosing the lungs, heart, and abknighted at the accession of James I. domen. The ovum after fertilisation divides up into a number of cells. A cavity called the segmentation cavity then appears; an outer layer of cells, the ectoderm, and an inner layer, the endoderm, are differentiated. there is established a linear streak called the primitive streak, consisting Grand Council there. He founded a weekly critical periodical, which had tween ectoderm and emander for its aim the freeing of literature mesoderm gradually extends over the from the shackles of pedantry and tigid adherence to rules. He did much by his contributions as a journalist most manimals a cleavage appears and critic to create a Ger. national in the mesoderm, which ultimately literature free from foreign influences.

The founded a tween ectoderm and emander to ectoderm, but in by his contributions as a journalist most manimals a cleavage appears and critic to create a Ger. national in the mesoderm, which ultimately literature free from foreign influences. The embryonic area then develops, | critical genius; Die Staatshaushaltung folds at head and tail, and attains a crescent formation, the endoderm being represented by the yolk-sac and primitive alimentary canal held between the horns of the crescent, and the body cavity forming the body of the crescent.

Body's Island, a sandbank off N. Carolina, U.S.A., extending for some distance along the coast. It has a lighthouse 150 ft. high, the highest in

the States.

Boece, Boeis, Boyce, or Boethius, Hector, celebrated for his Scotorum Historia ab illius Gentis Origine, trans. into the Scottish language for James V. by John Bellenden, and done into some 70,000 lines of verse by a doubtful William Stewart, was 6. at Dundee about the year 1465. Descended from an anot. family who had held the barony of Panbride, near Carnoustie, since the reign of David II., B. received his education at Dundee, Aberdeen, and Paris University, where he took the B.D. degree. Vacating the chair of philosophy in the college of Montaigue, he was in 1500 appointed by Bishop Elphinstone to the first principalship and professorship of divinity of King's College, Aberdeen. Upon the death of that prelate B. wrote his life under the title Episcoporum Murthlecensium et Aberdonensium. In 1527 he received from the king a pension of £50 Scots yearly. Later, when he was appointed rector of Tyvie, that pension was altered for a yearly 100 merks Scots. This he enjoyed until his death about the year 1536, when he was buried beside Elphinstone. He had been made doctor of divinity (Aberdeen) in 1528. His famous history, introduced by a geographical description of the country, contains much that is fabulous and credulous. Its first edition of seventeen books was published at Paris in 1526. was

Boeck' Ger. ph · born at university of 114. under Wolf he

bent.

logical professor of philology at Heidelberg, and in 1811 he was transferred to the university of Berlin, where he occupied the chair of rhetoric and ancient literature. According to B. philology should be approached not only from the literary but also from the social and historical side, necessitating

entire life anct. wo: gave a gr classical numerou particula of Pindar, ... der Athener: Metrologische suchungen über Gewichte, Münzfusse. und Masse des Allertums, 1838. He also commenced the great Cornus Inscriptionum Gracarum.

Boehm, Sir Joseph Edgar (1831-90). sculptor, was born at Vienna, of Hungarian parentage. He early settled in England for the study of his art as a moulder of coins and medals, and his work was attended with such success that he was persuaded to devote his whole attention to sculpture. In 1869 he executed the colossal statue of Queen Victoria for Windsor Castle, and after that time a succession of noble patrons charged him with commissions. In 1878 he was made A.R.A., and in 1881 was nominated sculptor-in-ordinary to the In 1882 he became R.A. The effigy of the queen on the jubiler coinage of 1887 was designed by him.

He dicd at London.

Boehme, Jakob (1575-1624), a German mystical writer, was born near Görlitz in Upper Lusatia. His parents were poor, and he spent the early part of his life in looking after the cattle. He received practically no education, yet piety was so essentially part of his nature that he could not contemplate the sky without going into ecstusies of rapture. Later, it is true, he did receive some little education, but it was of the slightest kind. He was about the age of fourteen apprenticed to a shoemaker, and he remained in this trade for some very considerable time. He was never at any period in his life possessed of much wealth, and the greater part of his life was spent in one long struggle with poverty. His first written work was the Aurora, a work of revelation and meditation; of the nature of God and man. The book was engerly read, and created a considerable sensation, so much so that he was forced to appear before the local council, who con-fiscated his book and told him to write it the no more. For the next six years he was silent, but at the end of that time he again began to write on such subjects as repentance and resignation. In 1624 he was summoned to Dresden, where he was well received, and where his works received high commendation from the court. He still, however, had to face clerical opposition, and both he and his chief opponent, Richter, died within a few months of one another. His main aim in the writing of his great work Aurora was to attempt to explain the origin of things. His language is always essentially mystical, and his meaning is often wrapped up in symbolic language too obscure to be easily understood or explained. His philo-

can be largely called the His coplix philosophy of contradiction. The Un- Medica, 1708; and grund, or Urgrund, was the source of Cognoscendisci Curandis Morbis, 1709. everything-love and sorrow, heaven and hell, sweet and bitter, and his conception of God made the Deity the beginning and source of everything rather than the goal to which the ittain.

and a as the nd his of the

theologian. He was constantly attacked by the clergy, but he bore all attacks with considerable patience. His name is often quoted in England as Behmen, and during the 17th century his works were very extensively studied.

Boerhaave, Hermann (1668-1738),

works include Institutiones Aphorismi de

Boerne, Ludwig (1786-1837), Ger. writer and politician, born at Frankfort, of Jewish extraction; studied at Heidelberg and Giessen. In 1818 he was converted to Christianity and changed his name from Löb Baruch to Ludwig B. From 1818-22 he was editor of the Wange, described as a journal for civic life, science, and the Arts, and in 1819 issued Die Zeitschwingen. After the revolution of 1830 he settled in Paris, where he counted to the Arts where he would be the Arts where he was the settled in Paris, where he was the settled in Paris where t founded Le Balance. His political works, such as Letters from Paris. 1832, are marked by revolutionary patriotism, and his literary writings, notably Jean Paul, by beauty of style.

sively studied.

Boehmeria, or Böhmeria nivea, a species of Urticaceæ which is a native of China and Japan. It is valuable in commerce for its long and strong bastfibres which are woven into the very durable material known as grasscloth, rhea, or ramie.

Bœotia was one of the anct. political divs. of Greece: enclosed by mts., it had an area of about 1120 sq. m., it had an area o

had an area of about 1120 sq. m., the British and the Boers of the Trans-extending between Locris and Phocis on the N., and Attica and Megara on the S. The carliest inhab, were the Brotians, who were driven out by the Brotians, who were of Eolan race and came from Thessaly. The prin. pursuits of the Brotians were agric. in nature; as compared with other Gks. they were rough and boorish. Great Britain contine side and the This fact led to the term Brotian the Great Britain on the one side and the This fact led to the term Brotian in Transvaal Republic and the Orange being used as a synonym for ignorant, unlettered stupidity. The dist. was flivided into five main diver: the basin of Lake Copais, that of Asopus, the plain of Thebes, the coast dist. of the Eulxoan Gulf, and that of the Eulxoan Sea do not suffice, and after the spring rains the Copaic plain is Transvaal, was occupied by the almost under water. A Fr. company british troops under Lord Roberts on undertook the drainage of 60,000 ac. In 1886. Formerly the Brotian race and the Greek kingdom.

B. together with Attica, forms a province of the Greek kingdom. B., together with Attica, forms a of S. Africa by the S. African Union province of the Greek kingdom.

Act of that year. Act of that year.

Boethius, Anicus Manlius the most celebrated physician of the quatus Severinus (c. 470-c.524), Rom. 18th century, was born at Voorhout philosopher and state-man, born in the neighbourhood of Leyden. In Rome, of a distinguished family, he 1682 he took his philosophical degree received a liberal education and soon at Leyden, and in 1693 his doctor's became noted for his learning, especidegree. He was appointed lecturer on ally in Gk. In 510 he became consul, the theory of medicine at Leyden in and later chief of the senate. In 500 1701, professor of medicine and botany the seat of gov. of Theodoric, king in 1709, and professor of chemistry in of the Goths, had been fixed at Rome. 1718. He had a great roputation in and P. whe had considered by the seat of gov. 1718. He had a great reputation in and B., who had gained Lis conhis time, and made a fortune of fidence, was appointed magister 2,000,000 florins by his profession, officiorum in his court. He lost the

favour of Theodoric, however, by his The surface of the Irish Bs. is firm stand for the rights of the covered with fine green turi, and the Romans against the tyrannical rule of Gothic officials, and in particular by his defence of Albinus and Symmachus, who had made an attempt to assert Roman independence. B. was accused of treason, degraded from his dignities, despoiled of his The surfac property, and after a long imprison-ment at Pavia, executed by the king's up into n command. While in captivity he pro-for drains duced his great work De Consolatione Philosophiæ, which takes the form of a dialogue between the writer and philosophy, the latter teaching the Moss should also be named. mutability of all things save virtue.

the religious tone of this work is decidedly theistic, it contains no reference to Christianity, which fact, together with the doubtful authenticity of buted to

the medi a Christian saint. This book was very popular in the Middle Ages, and was translated into Anglo-Saxon by Alfred the Great, and into Eng. by Chaucer. Boethius also translated the chief works of Aristotic, forming the main channel for the diffusion of the doctrines of that philosopher in the Middle Ages, and wrote manuals of arithmetic, astronomy, geometry, and music, which were largely used. His complete works have been several times published, the last edition being ferment, he devoted some years to at Paris in 1860.

Boethius, Hector. seeBOECE,

HECTOR.

Bog, land which has become soft and spongy, from the presence of too much water. Generally it is partially composed of decomposing vegetable matter, and in this formation it is common in northern countries, and particularly in Ireland. Here the Bs. are sufficiently firm to bear considerable weight, and the heat of decomposition forms the vegetable matter into 'peat,' which is cut out and used both for fuel and in the composition of manures. It is estimated position of minures. It is estimated that over 2,000,000 ac of the surface of Ireland is thus occupied. The greatest B. in the British Isles is the B. of Allen, lying to the E. of the Shannon, chiefly in co. Kildarc, Ireland. The name is given to a collection. tion of Bs. separate, but grouped to-gether as the B. of Allen. The Bs., which may be from 20 to 40 ft. in thickness, often prove a serious origin.

menace to the prosperity of the surrounding land, for in the event of a 'B. burst' the neighbourhood may be swamped with water and covered with a deposit of peat.

roots are so matted together that a man accustomed to the work may walk over them in safety. But the unwary venturer would be certain to take a false step and fall through, to be swallowed up almost instantly.

up into m for drainage, of which advantage is now being taken. In England, Chat Moss, in Lancashire, is a B. which has been largely filled up, and Solway

Bog, River, see Bug, River. Bogardus, James (1800-74), Ameriinventor, was born at New York, was brought up to the business of a watchmaker. He early began to devise mechanical improvements for clocks, and also for other purposes. He invented the dry gas-meter, a pyrometer, a sounding machine for use in deep seas, a dynamometer, etc. In 1839 the British gov. accepted his

method for the manuf. of postage stamps. He died at New York. Bog-asphodel, or Narthecium ossifragum, is a species of Liliaceae growing abundantly on wet moors in Scotland and N. England. It has

yellow flowers, a sympodial rhizome and loculicidal capsule, Bogatzky, Karl Heinrich von (1690-1774), Ger. divine, studied theology at Jena and Halle (1715-18). As indifferent, health hinders. indifferent health hindered his prethe foundation of an orphanage at Glaucha, in Silesia. After living for five years (1740-45) at the court of the Duke of Saxe-Coburg, he retired to an orphanage at Halle, and spent

nportant of hatzkästlein which has

been reissued over sixty times.

Bog-bean, Buck-bean, or Menyanthes trifoliata, is a common marshplant of Europe, Asia, and N. America, and is the single species of its genus. It belongs to the order Gentianacem, and its rhizome has tonic properties.

Bog Butter is a curious fatty sub-stance which has been discovered in peat-bogs of Ireland and Scotland, and is known technically as Bulyrellite. Its origin has been much disnuted, some authorities considering it to be derived from vegetable substance, others proving by the finding of cow-hairs in it that it is of animal

the story of Psyche, and characterised by refinement of style and vivacity of language. Its publication brought him into great popularity, both with the court and the Russian reading classes generally, but the reputation of the work no doubt rests as much upon the novelty of its conception as upon its intrinsic merits, as it was the first work of its kind that had ever appeared in Russia.

Bogermann, Johann (1576-1633), a Dutch pastor, born at Oplewort, in Friesland; educated at Heidelberg and Geneva, and became pastor at Leeuwarden. He took an active part in several religious controversies, notably that with Arminius, and in 1618 was president of the Synod of Dort. He was largely responsible for the standard vernacular version of the The latter part of his life he Bible. was divinity professor at Francker.

poet, author, and dra Copenhagen. He was having written more

plays, and is well known in his own tn. is well equipped with the seaside country for his songs and witty requirements, and possesses a 16th-

sayings.

Boghaz Keui, vil. of Asia Minor, in the prov. of Anatolia and vilayet of Angora. The heights which overlook the vil. are crowned by the ruins of an anct. Persian city, generally identified with Pteria, which Crossus destroyed after crossing the Halys (see Hero-DOTUS). Parts of the rocks are covered with sculptures, whose prin. scene shows the Persian king at a triumphal entry. It is composed of sixty figures, some of which are colossal. The rocks have been levelled by hand, though they naturally form a ring round the

Boghead Coal, or Torbanite, is a bitumenous substance found near Bathgate in Scotland. It is dark brown in colour, and somewhat of the nature of cannel coal. It contains a large amount of volatile substance, and fish, but there are manufs. of consequently is largely used in makleather, boots, etc. Pop. 11,500.

Bogomili (Slavonic, beloved of makleather, boots, etc.)

work supporting the front portion of a locomotive engine or railway carriage. The B. is pivoted to the frame of the engine, and has usually two pairs of wheels. By reason of the freedom of action given by the pivot. the strain and jolting caused when taking curves is greatly lessened, and the danger of the train leaving the rails reduced.

Bog Iron Ore is a mineral formed from depositions of limonite often found in bogs, lakes, and meadows In composition it may be compact

poet rests mainly upon his *Dushenka*, | blackish-brown or yellowish-brown. 1778, a mock-heroic poem based on The iron which it yields is of good quality, but there is usually little of it, and it is often mixed with sand and clay. It is formed abundantly in the lakes of Norway and Sweden, in N. America, and in some parts of Scotland.

Bog Moss, or Peat Moss, is the name given to the various species of Sphagnum found in damp soil in northern lands. They are spongy, and readily absorb and retain water, both from the soil and from the atmosphere. The leaves are of a whitish colour, and the decaying roots aid in the formation of peat. See Dr. R. Braithwaite's Sphagnaceæ or Peat Mosses of Europe

and North America, 1880.

Bog Myrtle, Sweet Gale, or Myrica Gale, is a plant which grows abundantly in bogs of Britain, especially in the Highlands of Scotland. leaves emit a fragrant odour when as divinity professor at Francker. crushed. It bears male and female Bögh, Erik (1822-99), a Danish catkins, and the fruit is a wax-et, author, and dra

watering-place in Sussex, div. of Chichester. The

requirements, and possesses a 16th-century church at Bersted. Pop. of

urban district (1901) 6180.

Bogo, or Bago, a tn. on the N.E. coast of the Is. of Cebú, in the Philippine Is. There is a good harhour, and the surrounding country is fertile. Pop. about 15,000.

Bog Oak is a source of much profit to Ireland, where it is much used in the manufacture of well-known ornaments, such as miniature pigs. The wood is found in bogs, which indicates that forests once flourished in the present marshy ground, and it has become hard and black. The action become hard and black. of the antiseptic water preserves the oak well, but at the same time renders it difficult of manipulation in carving.

Bogodukhov, a tn. of Russia, gov. of Kharkov, 45 m. N.W. of Kharkov.

God), a religious sect which arose in the Gk. Church in Thrace, Bulgaria, and Macedonia, and was first mentioned at Philippopolis in 1115. Their leader was a monk named Basil, from whom Alexius Comnenus obtained a full knowledge of their doctrine and then condemned his informant to be burned in 1118, the followers who would not recant being thrown into prison. The sect still survived, how-ever, until the Mohammedan conquest of the Balkan states in the 16th century. The B. held that God Satanæl and Christ. created or spongy, and in colour it is either former of whom rebelled and created

earth and human kind, though God and the manuis, include soap, cloth, himself gave life to these new beings. leather goods; the port is Honda, on Christ received from his mother Mary the semblance of man, and conquered Satanæl, who became known as Satan. This sect upheld celibacy, forbade the eating of meat, and rejected images; baptism among them was purely spiritual, and the Real Presence in the Eucharist was denied: the O.T. was ignored but for the Psalms and Prophets, while the N.T. was received in its entirety. See Razki's Boyomili i Paterani, 1869; J. Heard's Russian

Church and Russian Dissent, 1887.
Bogong, a mt. peak in Victoria,
Australia. It has an alt. of 6508 ft.

above sea-level.

Bogoroditsk, a tn. of Russia situated in the gov. of Toola, 40 m. to the S.E. of Toola. It has a trade in honey and flax, and a pop. of 7290.

Bogos, a pastoral tribe of Northern

Abyssinia. Their country is largely cultivated, but in parts has almost impassable undergrowths, affording cover for wild animals. The language spoken is similar to Ago, and called by the natives Bilen. Christianity and Mohammedanism are the prevailing religions, and their laws are of water. Under their various head-The pop. is peculiar and stringent. but exceeds variously estimated. 10,000.

Bogota, is an American city, cap. of Parnassus, meadowsweet, marshthe prov. of Cundinamarca and the marigold, lousewort, rushes of difrepublic of Colombia, situated on a ferent kinds with sedges and grasses, fertile plateau 8700 ft. above seasundew, and yellow-rattle. level. It was founded by Gonzalo in the roll of Bengal. It is Ximénes de Quesada, a native of Santa l'é near Granada, in 1538, and became a bishopric in 1561, cap. of the vicerovalty of New Granada in 1598. After the Declaration of In1598. After the Declaration of In1598 dependence it was taken by the
Spaniards in 1816, recaptured by a horse which arises from a distension
Bolivar in 1819, and became the seat of the joint-capsule and contains a
of gov. of Colombia in 1831. The is traversed by the rivs. San Fran and San Augustin, and has req

the Magdalena. Pop. about 120,000. Bog Plants have many difficulties th which to contend in their with struggle for existence. The soil in which they grow often contains rich food materials, but is not sufficiently acrated, so that the plants cannot form nitrates; several of these plants, therefore, e.g. the sundew butterwort, are carnivorous, and obtain their nitrogen from insects which they devour. Again, the water is deficient in lime and other salts. and the plants are stunted, unlike their neighbours in the marshes. Water-absorption is rendered difficult by the peaty acids of the bog, and many plants have therefore the characteristics of xerophytes. Agriculture will not tolerate the soil necessary for them, and the consequent drainage of the land usually kills the plants. Many of them are extremely beautiful, and for this reason they are grown under artificial conditions

Bogoslovsk, a Russian vil. of the examples: bladderwort butterwort. Ural Mts. gov. It is situated 185 m. bilberry, hog asphodel, bog bean, hog to the N.E. of Perm. the N.E. of Perm.
Bogota, originally Santa Fé de bog pimpernel, heather, ling, grass of

planted in gardens, in a soil composed of peaty substances and bog-mould.

they receive a plentiful daily supply

sundew, and yellow-rattle.

Bogra, a dist. of Bengal. It is situated in the yalley of the R. Brahmaputra, and is placed partly

within its detta. Its area is 1491 sq. m., and its cap. B. Pop. 689,467. Bog-spavin is a term used in farriery for a tumour on the hock of

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hich

(1750-1825).n near Eyeeducated at

He became pastor of a Congregational Church at Gosport in 1777, which office he re-tained until his death, and in 1789 he superintended the dissenting theological college of this tn. In 1795 he founded the London Missionary Society, and later the British and Foreign Bible Society and the Religious Tract Society. His best pubworks are his Essay on the Drine Authority of the A.T. (1801) and with Dr. James Bennett, a History of Discontage (1800) of Dissenters (1809).

Boguslav, a Russian [tn. 70 m.

the (custom house with other gov. buildings, and the beautiful cathedral: in the centre of the Plaza is a statue of Bolivar. As B. is subject to many earthquakes the houses are made of strong material; the town is noted for its numerous churches. It contains also a university, the Colegio Nacional de San Bartolomé, a museum, public library, observatory, and military academy. Within the dist. are valuated asseture-land. able mines and good pasture-land,

and wool. Pop. about 12,000.

Silesia in Prussia.

Bohain, a tn. of France, in the dept. of Aisne. It is 12 m. by rail from St. Quentin which lies to the S.S.W. Its

pop. is 5501. pop. is 5501.

Bohemia (Gcr. Böhmen, Bohemian Chekhy) is a prov. and kingdom of Austria-Hungary. It lies between 48° 33′ and 51° 3′ N. lat., and between 12° 7′ and 16° 46′ E.long. It is bounded on the N.W. by the kingdom of Saxony, on the N.E. by the Prusian prov. of Silesia, on the S. by Upper Austria, and on the S.E. and S.W. respectively by Moravia and Bayaria. respectively by Moravia and Bavaria. It has a length of 210 m., reckoned from E. to W., and a breadth from N. to S. of 170 in. Its area is 20,060 sq. m., and its pop. in 1900 was 6,318,280. The kingdom consists of a series of high-lying valleys surrounded by mts. The only riv. of much importance is the Elbe, which drains the whole country and flows through a single defile on the Saxon frontier. High mt. ranges surround the country; it is separated from Silesia on the N.E. by the Riesengibirge, Adlergebirge, and other range Sudetic system:

it from Saxony (* the Bohmerwald, or Bohemian Forest, on the W. and S.W., the Moravian plateau on the S.E., joining the Bohmerwald at the south-western extremity, and the Adlergebirge at its north-eastern, complete the chain of enclosing mts. The Elbe leaves B. through a

birge and Eger flow

which separates the Bohmerwald from the Erzgebirge. A series of terraces and plateaus slope down from the Bohmerwald in the direction of the Elbe; they are watered by the Mol-dau and its tributaries. The river valleys are the only level dists., at Prague, Pilsen, and Budweis, and they are not of great extent. The climate of Bohemia is similar to that of

S.S.E. of Kiev which trades in cloth; ous age, whilst outflows of volcanic material are found. About a third of Bogutschutz, a vil. of the prov. of the surface is covered by forests, the remainder being tilled or used as Bohain, a tn. of France, in the dept. being grown in the lower dists. of the N., and potatoes and oats in the higher-lying dists. Much sugar is manuf. from the beetroot which is grown. B. is very rich in minerals, producing one half of the mineral wealth of the whole empire. The minerals found include silver, iron, lead, copper, tin, antimony, uranium, and a small quantity of gold; in addition to these the most important, coal and lignite. The coal-mines. which lie principally around Kladno and Pilsen, have a yearly yield of over seven million tons, whilst the lignite mire. All colling from Aussig to Eger along the litzendam, pro-duce over against a rather tops. Iron ore is mined in the neighbourhood of Prague, Pilsen, and Falkenau, and smelted at the two former places: since 1878 the Gilchrist treatment has done much to improve the iron industry of the country. Sugar manufacturing is the industry of most importance that is carried on. The other manufs. include cotton goods from Reichenberg to Brux, and at Prague; cloth and woollen goods at Reichenberg, Aussig, Friedland, and Asch; linens at Schonberg, Trantenau, and Hohenelbe; carpets at Reichenberg and Eger; beer at Pilsen and Eger. Since the glass trade was introduced from Venice in the 13th century it has been a very considerable industry in B., the chief centres being Prague, Eger, Gabionz, and Karlsbad. tilling and printing are also carried on to some extent. The trade of B. is a very active one, as the Elbe is exceedingly important as a means of communication and transit. The education of the country is on the whole good. Prague is the oldest of Ger. universities, being founded in 1348; it was divided into two separate universities in 1882, one for Ger. and one for Czech students. There are Germany; the low-lying river valleys two commercial academies at Prague, naturally enjoy a more temperate a mining academy at Pribram, a climate than the mountainous dists. forestry academy at Weiswasser, and climate than the mountainous dists. forestry academy at Weiswasser, and There are no very extensive lakes, agric colleges at Taborand Böhmischbut very many ponds. The country Leipa, besides various other instituis noted for its mineral springs, of tions of a technical character. The which the best known are the saline secondary schools are on the same chalybeate springs of Franzensbad, make as the Ger., whilst elementary Marienbad, and Giesshubel, the warm ducation is compulsory from seven alkaline springs of Carisbad and to fourteen years of age. The country Teplitz, the bitter cathartic springs of solvened by an assembly number-Sedlitz, Sardschitz, and Pullna, and ing 212 members, and sends 130 the sulphurous springs also found at Teplitz. Bohemia is largely composed of Azoic and Paleozoic rocks of great Czechs, a Slavic race which has its of Azoic and Paleozoic rocks of great Czechs, a Slavic race which has its antiquity; there are also marine de own language and literature. The re-posits of the Triassic and the Cretace-mainder is composed principally of

Czechs there exists a feeling of bitter hatred. Speaking in a general sense, the Germans may be said to represent the cultured and more intelligent element of the pop., the bulk of the Czechs being peasants or dwellers in the small towns and villages. nevertheless regard the country as theirs by right, and insist on the right of B. to occupy an autonomous position in the Austro-Hungarian monarchy analogous to that of Hungary. Over 95 per cent. of the pop. is Rom. Catholic, 11 per cent. being Jews. For administrative purposes the country is divided into ninety-four dists. and two autonomous municipalities.

History.—The name B. is derived from the Boil, a Celtic tribe which was in possession of the country at the earliest date of which we have any historical knowledge. The Marcomanni entered the country and vanquished the Boii shortly before the beginning of the Christian era; they held dominion until about the 5th century, when the Czechs entered the country, which they have since occupied. Nothing definite is known about B. from this period for a long time, the legendary

people as Krok and foundation in fact. introduced into th 9th century by Cyr

and Hungarians with great success. Rudolph of Hapsburg, elected Ger. emperor.

ing care

when Ottom when Ottoma III. succeeded him, being only seven years of age when his father's death took place: during his reign, which lasted till 1305, the kingdom enjoyed very great prosperity. His son Wenceslaus III. was assassinated at Chaute the or wign of only one year. Olmutz after a reign of only one year; with him the male line of the Premysl dynasty terminated. Rudolph of Hapsburg and Henry of Carinthia reigned for a very short time, and no events of any importance occurred during their reigns. After these kings the Bohemians in 1310 chose John of Luxembourg for their ruler, the only son of the Ger. emperor Henry VII. King John was a strong member of the church militant, and was never happier than when engaged in some 'holy war' or other against the infidel. Whilst engaged in a crusade against the Lithuanians in 1336 he suffered the loss of one of his eyes. and complete loss of sight supervened He negotiated two important marin a short space of time. Notwith-riages, however, that of the Arch-

Germans, between whom and the standing his blindness he went to the aid of his brother-in-law, the King of France, against the English, and was killed in 1346 at the battle of Creey, His zeal in war did not do any good to his kingdom as he spent all its revenues with no gain. His son Charles IV. was an admirer of the old Bohemian language, and a great patron of learning. He founded in 1348 the oldest European university, that of Prague. His Golden Bull, issued at the Diet of Metz of 1356, is remarkable for the fact that it recommends the Ger. princes to make a study of the Bohemian tougue. The daughter of Charles IV. Anne, was married to King Richard II. of Eng land. On Charles' death in 1378 his son Wenceslaus IV. succeded him. The doctrines of Wyclif penetrated to B. about this time, and were enthusiastically proclaimed by John Intermingled with these doctrines were the national aspirations of the Czechs, and as a result B. was the arena of internecine wars. Huss was burnt in 1415 at the council of Constance, but John Ziska became the leader of the Hussite party, and owing to his remarkable military maning the war was prolonged more it would otherwise have been. though blind, was a born leader n and a talented general, being ally skilled in fortification; he but the annals of the kingdom have no interest until the 13th century. Wenceslaus I. was king from 1230 to 1253, and his son Premysl Ottokar by 18 skill. The moderate party of II. waged war against the Prussians cause they insisted on the right of the laity, denied by the Catholic miests, to retain the sacramental cup. · Ziska's death made terms with Catholics, and Sigismund, who succeeded Wenceslaus IV. in had succeeded Wenceslaus 1419, was acknowledged king in 1433. Sigismund died in 1437 and was succeeded by Albert, Duke of Austria, who died in 1439 after a reign of only two years. During the minority of his posthumous son by Elizabeth, daughte cath in brad we 1457 of as this son was mously elected king in 1458 by the Bohomian estates. Podebrad was continually engaged in struggles against Matthias Corvinus the King of Hungary; on the former's death in 1471 he was succeeded by Wladislas, son of Cassimir, King of Poland. Wladislas also obtained the crown of Hungary, and in his reign the opposing religious parties were united by the peace of Kullenberg in 1485. He was a weak and inefficient ruler, and died in 1516.

furthermore introduced the Jesuits empire at Vienna. The Bohemians into the country in 1556, a step which consented on the condition that such had reactionary results. The Emperor a proceeding did not affect their Maximilian II. succeeded him in 1564. and was succeeded after a reign of two years by his son Rudolph II. In 1609 the Bohemians compelled Rudolph to grant the noted Letter of Majesty which conferred the privilege of religious toleration on the country. This step did not, however, prevent the recurrence of the quarrels between Protestants and Catholics: Rudolph was compelled to abdicate in 1612 in favour of his younger brother Matthias; later, however, Rudolph succeeded in causing his cousin Ferdinand, afterwards emperor, to be elected as King of B. The Bohemian tongue was declared to be the official language of the country in 1615. Ferdinand, although openly tolerant of Protestanism, was a bigoted Roman Catholic, and had sworn to root out heresy in his dominions. The defenestration (Lat. *Jenestre*, a window) took place in May 23, 1618. Slawata and Martinitz, two of Ferdinand's myrmidons, were flung out of the windows of the Hradschin by the Protestants. This event precipitated the Thirty Years' War (1618-48), the events of which belong to the history of Austria roots; by this means all the technical and Germany. By the end of the terms of theology, law, and philo-Thirty Years' War the political and sophy have been formed and the religious liberties of B, were swept language is able to cope with the religious liberties of B. were swept away, and the national language fell into desuctude. The Edict of Toleration, issued in the reign of Joseph II., restored the freedom of the different religions, and many who had been Protestants in secret declared themselves openly as a result of this edict. In the memorable year 1818, when Europe was everywhere disturbed by revolutionary movements, an attempt was made to assert the anct. inde-

duchess Mary, grand-daughter of the Emperor Maximilian, to his som Louis, and that of his daughter Anne Louis, and that of his daughter Anne to the Archduke Ferdinand, grandson of the emperor. The chief event of the reign of Louis is the invasion of Hungary by the Sultan Solyman, and the defeat of the Hungarians at the battle of Mohacz, which took place on Aug. 29, 1526, and in which Louis was killed. The Archduke Ferdinand was elected king after some controversy, and from this date B. really lost its nationality, as Ferdinand procured in 1547 that he should be nominated hereditary instead of elective ruler. Ferdinand crushed all strengts at recovering any of the liberty which he had taken away, and deliberations of the parliament of the furthermore introduced the Jesuits consentation. The Rohemians into the country in 1556, a sten which opinion that B., Moravia, and Silesia should by rights constitute a separate state, under the same sovereignty as Austria and Hungary. Count Baden afterwards attempted to pass a bill making it necessary for every gov. official accepting employment in B. to have some knowledge of the This attempt Bohemian language. was, however, unsuccessful and was, in fact, responsible for the overthrow of the government then in power.

Language and literature.— The

Bohemian language belongs to the Slavonic group, and was the first of that group to be scientifically cultured. It is spoken in B. and Moravia, and in a slightly modified form in Austrian Silesia, Slavonia, and a large part of Hungary. The Bohemian language, in common with the other Slavonic languages, has many declensions, tenses, and participles; in this respect they surpass modern languages, and are analogous to the old Greek and Latin tongues. The participles give the language much flexibility, allied with conciseness. The Bohemian has a great facility for forming new derivatives from native demands on it of new sciences and inventions, without being forced to concoct hideous and cacophonous mixtures of dog Latin and worse Greek to describe anything new. The language has a great variety of diminutives, patronymic nouns also are used, and it contains the inceptive verbs. The conciseness of Bohemian is increased by the absence of auxiliary verbs, and by the fact that in the pendence of B. against the Austrian preterite tenses the termination exdominion. The insurrection, however, presses the sex of the verb's subject did not meet with success: the army It has a great variety of words for gained the upper hand. Prague was varying shades of meaning, and

possesses also the past participle prose chronicle, and the Tkadlecck active. The small connective particles, the weaver, which is thought by corresponding to the Gk. ἀλλά, μἐν, yàρ, δὲ, etc., are also found in the Bohemian. It will thus be seen that the language has much expressiveness and energy. It is able to express the various emotions in a vigorous and lively manner, and since it is less fettered to particular constructions than any of the modern languages, the free and unrest the words give

and perspicult; that it resembles the Greek in its subt

also inde

translating the classics. The freedom of construction of the language renders it possible for any harsh sounds to be toned down, and generally it is very euphonious, having a the Greek.

Language is undoubtedly a great influence in the development of national music; Bohemian is ranked next to It. in musical value, and the

e country, ve a high

iture may be divided into three main periods— the first extends from the beginning up to the time of Huss, that is, to 1409; the second period extends from the time of Huss to about 1774; and from then till the present time forms the third period. The earliest genuine documents we have are sev. hymns and legends, and some epic fragments have been preserved. A version of a Lat. Alexandreis dates probably from about 1245, and versified lives of the saints have also been preserved. The Chronicle, in verse, which is generally called after Dalimil, though the real name of the author is not known, belongs to the 14th century. The Bohemians possess some remains of a collection of national songs, which probably date from 1290. They are not rhymed, and appear to have been of great merit, Goethe paying particular attention to them. The University of by Charle

favour of

language, and commanded it to be learnt by the sons of the Ger. electors. All decrees were written in Bohemian instead of in Lat, in the reign of his son, the Emperor Wenceslaus. To this period belong the Book of the Old Lord of Rosenberg, one of the very early specimens of Bohemian prose, and the Exposition of the Law, by mitted to the conqueror: no literature Andrew of Duba; Smil of Pardubitz, surnamed Ilaska, wrote some clever the decline was such that by the satires. Pribik Pulkava wrote another 18th century Bohemian us a written

some to be based on a Ger. production, is written in praise of a certain Adelicka: the author of the latter work is not known. The Bohemian author of the 14th century who is preeminent among his contemporaries is Thomas of Stitny (1333-1400), who wrote in excellent prose upon religious and moral questions. Among other authors may be mentioned Warnier Z. Brezowa, who wrote a history of the Roman emperors, and translated Mandeville's Travels. By the end of this period, also, the complete translation of the Bible into Bohemian had been made. With Huss commenced the second period of the Bohemian language. The prevalence of religious disputes caused the Bible to be more widely read and better understood. Huss did much to settle Bohemian the Greek. orthography, and his voluminous can be ex-writings had great influence. Many of his works were in Latin, but a number in Bohemian. The church service was now read in Bohemian, the Bible was re-trans., and a great number of religious and controversial works written. One of the most influential figures of the time is Peter Chelcicky, who died in 1460. He was independent in his opinions, and advocated the entire submission of the religious man to temporal authority. He has been styled the Bohemian Tolstoi, and his writings had much influence in the formation of the Bohemian Brethren. His chief work is The Net of Faith. The first regular printing press was set up at Prague in the year 1487, and the years from 1500 to 1620 may be said Tolden age of During the

in B. and the at this period. artistic tend-veloped them-

selves. In B. at this time the cultivation of learning was open to the whole people; all branches of science received attention, and were brought to a very high degree of knowledge for the time. The writers of the period are too numerous to receive detailed mention, but the names of ' Gelenius and Veleslavin, 1516-99; Libocan, d. 1553; Bartos, d. 1539; Sikt of Ottendorf, 1500-83; Hajek, 1495-1553; Harant, Pisecky, and Wenceslaus Vratislay may be mentioned. But in 1620 the battle of the White Mt. rendered fruitless the Bohemians' efforts to preserve their language. The whole Bohemian nation sub-mitted to the conqueror: no literature

jects; they were excellent works, and his projects for improving education attracted attention all over Europe. But they were written from exile, Comenius dying in Holland at the age of 78, in the year 1670. In the third period of Bohemian literature, dating from 1774, a revival has taken place. At that time a deputation of secret Bohemian Protestants induced the Emperor Joseph II, to grant religious toleration, and the Bohemian language at the same time began to flourish. The revival is still more marked since the middle of the 19th century. The poet Karl Hyneck Masha was the leader of the so-called romantic school, by means of which the Bohemian drama again began to flourish. Now most of Shakespeare's plays have been trans. into Bohemian. Among the many noteworthy figures in literature from 1774 to the present time the following may be briefly mentioned: Joseph Dobrovsky, 1753-1829, wrote a Czech grammar and a valuable work on Old Slavonic; Jungmann, 1773-1817, compiled a dictionary; and Kolar, 1793-1852, and Celakovsky, 1799-1852, were poets; Palacky, 1798-1876, was the author of the best national history, and other historians since his time are Tomek and Kalonsek. Bozena Nemcova, 1820-62, collected the folk-lore of the country, and Schafarik, 1795-1861, was the ethnographer of the Slavonic races. Karel Harlijck may be called the founder of Bohemian journalism. The best-known present-day poets are Sladek, 1845; Zeyer, 1841; Eliska Krasnohorsa,' the nom-te-plume of Henrietta Pech, and Jan Vrchlicky, 1853.

Bohemia, Forest of, or Böhmerwald, is the mt.-range between Bohemia and Bavaria, stretching from the mouth of the Elic to the Danube, about 120 m. in length. It is largely covered with dense, primeval forest, and towards Bavaria it is rugged and broken; the southern portion is known as the Bavarian Forest. The highest points are the Arber, 1780 ft., the Rachelberg, 1765 ft., and the Kubani, 4470 ft. It is traversed at various points by four roads, and by

Bohemian Brethren. sec MORAVIANS. Bohemond I. (1056-1111), the eldest peror of Byzantium in 1081. He was excluded from the throne of Apulia by his brother Roger, and took a distinguished part in the grant de of 1092

three mountain railways.

tinguished part in the crusade of 1092.

language might be said to be almost himself there as prince. He was, howextinct. John Amos Comenius, or ever, imprisoned by the Turks in 1100, Komensky, wrote over fifty works, but after three years' captivity redealing mostly with educational subtraction of the company of th to renew the war against Alexius. He married a daughter of Philip of France.

Bohlen, Peter von (1796-1840), a well-known German orientalist, born in Oldenburg. He was educated at Halle and Bonn, where he devoted himself to the study of Oriental himself to the study of Oriental languages, attending the lectures of A. W. von Schlegel on Sanskrit at Bonn in 1823. In 1825 he was appointed extraordinary, and in 1830 ordinary, professor of Oriental languages at the university of Königsberg. His works include: Ancient India, 1830 (2 vols.), his most important work; The Story of Genesis in the Light of Historical Criticism. 1835: an edition of Bhartriharis' 1835; an edition of Bhartriharis', Sententiæ; and Kalidasa's Rituson-hara; an Autobiography published in the year following his death; and translations of Sanskrit poems in the original metre. B. possessed a most extensive knowledge of Eastern history and literature, and his works rank among the first of their class: their deficiencies arise mainly from two causes; first, the great haste with which he worked, and secondly, a want of sound philological limit has for which he had into the country in in later year. impeded his antiquarian researches. B. was a contributor to the famous Penny Cyclopædia.

Böhme, or B BOEHME, JAKOB. or Bohm. Jakob.

Böhmen, see Bohemia.

Bönmer (or Boehmer), Eduard (1827-1907), was a German philologist, born at Stettin. He became professor of philology in 1866 at Halle, and in 1872 at Strasburg. His publications include an edition of Tractatus de Deo et Homine, by Spinoza, 1852, the manuscript of which B. discovered. and an edition of the Poem of Roland.

Böhmerwald, see Bohemia, Forest

Böhmisch-Brod, a tn. in Bohemia. Austria-Hungary, 191 m. Prague. Pop. (1900) 4234.

Bohmisch-Leipa, a tn. of Austria in Bohemia with extensive manufs. Pop. about 9000.

Bohmisch-Trabau, a tn. of Austria

in Bohemia, with a pop. of 6000. Bohn, Henry John (1796-1884), bookseller and publisher, was born in Bohemond I. (1056-1111), the eldest London, where his father, a Westson of Robert Guiscard, distinguished phalian by birth, had a second-hand himself in the war against the Em-pookshop. Upon his father's refusal to admit him to partnership with him Bohn set up in business for himself, and in 1841 his guinea catalogue of rare books attracted much attention. After the capture of Antioch he estab. In 1846 he originated his standard library of reprints, and followed with | Italy, and educated at the University a series of other libraries, until in 1853 he had issued over 600 vols. in cheap form. Many of the translations and compilations were his own work. He edited also Lowndes's Bibliographer's Manual, The Origin and Progress of Printing, 1857; and the Biography and Bibliography of Shakespeare, 1863. He died at his Twickenbern mansion. which was noted for its collections of valuable books and pictures, at the age of eighty-eight.

Bohol, one of the Philippine Is. It is placed between Zebu and Leyte, and lies in lat. 10° N., long. 124° E.

length is 40 m., and its pop. 120,000. Bohrdt, Hans, a German painter (self-taught), born at Berlin, 1857. He travelled much by sea, to become familiar with the changing scenes of His pictures are largely ocean. . marine-paintings (aquarelles and oil-He also painted a few paintings). official pictures of ceremonies, and of maritime events in which the Emperor William II. took part. accompanied the latter on a voyage to Italy, 1896. In 1898 B. became professor at Berlin Academy of Painting. Among his works are: 'Reception of Emperor William II. at Spithead, Aug. 2, 1889; 'The Meteor,' 1891; Brandenburg's First Sea-fight, 1893; Opening of the North Sea Baltic Canal, Gerlin' National Gallery); 'The Viking's last Voyage;' 'Sea-fight off Gothland in 1564,' 1901.

Böhtlingk, Otto (1815-1904), a Ger. Sanskrit scholar, studied Arabic, Persian, and Sanskrit at St. Paters.

burg (1833 (1839 - 12).comparativ regularly respecially s

buch (dictionary), which, with the help of two friends, took twenty-

three years to complete.

Bohun, Family of, played a con-spicuous part in Eng. history during the 13th and 14th centuries. Their founder was Humphrey, a companion William the Conqueror, but Humphrey (III.), steward in the household of Henry I., was the first the representative of note. Henry B. received the earldom of Herefo i from John (1199). As their lands lay on the Welsh borders, the Bs. were notable Marcher barons. Humphrey (VII.) was among the nobles who obtained from Edward I. the Confirmatio Cartarum (1297). Humphrey (VIII.), a lord ordainer, fought for Edward II.

was taken exchanged i

Boiardo, or Bojardo, Matteo Maria, Count of Scandiano (c. 1430-94), It. poet, born at Scandiano in Modena,

of Ferrara. His intimacy with Duke Ercole led to his appointment as governor of Modena in 1481 and of Reggio in 1487. His best work is the Orlando Innamorato, which Ariosto imitated and continued in his Orlando Furioso. He is famous also for translations of Herodotus, Apuleius, and Lucian, and his Sonetti e Canzoni; the dramatisation of Lucian's Timon is especially to be noted. The best edition of his works is by Panizzi, who issued them with his biography in nine volumes in 1830.

Christian (1744-Boie, Heinrich orn in In

f the Göttingen poets. His own work was by no means exceptional, although thoroughly sound, and his importance is rather as editor, and founder in 1770 with F. W. Gotter, of the Gottinger Musenalmanach, and later, in 1776, as edito rof Das Deutsche Museum, which was a monthly magazine with a high literary standard.

Boieldieu, Adrien François (1775-1831), Fr. composer, born at Rouen. At an early age he manifested a talent for music, and at eighteen wrote a one-act play which was produced at He studied music in Paris. Rouen. and became later a professor at the Conservatoire de Musique. His friends included at this period such masters as Cherubini and Kreutzer. In 1803 he occupied the post of mattre de chapelle to Emperor Alexander at St. Petersburg, but in 1810 returned to Paris to produce more On his death he received a oneras. public funeral. His best works are the Calife de Bagdad, 1799; Ma tante Aurore, 1803; the music for Rucine's Athalie, Jean de Paris, 1812; La Dame Blanche, 1825. See A. Pougin's Boieldieu, sa vie, ses œuvres. etc.. 1875.

Boil, a powerful Celtic people in-habiting originally part of Trans-alpine Gaul. They early crossed the Alps, settling in the dists, between the Po and the Apennines and also between the Danube and the Tyrol, while some took up their abode in modern Bohemia, a country which received its name from this invasion. They are frequently mentioned in Cresar, Livy, and Polybius.

Boil, an affection of the skin, consisting of a hard swelling containing dead tissue. It is the result of infection by the micro-organism Staphylococcus pyogenes, and is usually caused by general debility, some individuals being more liable to such of ill-health manifestations others. It is necessary to expel the dead matter in the B. by clearing it out after a linear lancet incision. The cavity should then be packed with literary products are fewer in number; antiseptic gauge, and hot boric fomen- five new epistles and the fifth and lend plaster or glycerine and Lella-donna. Reynolds' treatment consists of administering large doses of wellthours. In obstinate acta every four-hours. In obstinate cases vaccine treatment may be resorted to, the vaccine being prepared from the patient's own staphylococci. The first injection should contain 200 millions, which should be followed by injections of one million each up to a total of 500 millions, the whole treatment occupying fourteen days. Spreading of the infection to adjacent follicles should be guarded against in removing pus. Of chief importance is the question of building up the system by careful attention to food and hygiene, and a good tonic should form part of any treatment. Nicolas (1636-

oet, the fifteenth

parliamentary

clerk, born in the Rue de Jérusalem, Paris. He was educated at the Collège de Beauvais, and studied first theology and then law at the Sorbonne. was called to the bar in 1656, but was so disgusted at the insincerity and chicanery prevalent that he threw up his profession, and lived on the small fortune which his father, who died in 1657, had left him. He devoted himself henceforth to literary pursuits, but his first works hardly showed any promise of future talent. His earliest work of any note was his 'first satire,' which he pub. in 1660; eight others followed this, and still later he wrote four more, bringing the number up In these works, which to twelve. on Juvenal and were modelled Horace, he showed the capabilities of I'r. for expressive and at the same time regular verse. At the time of writing his satires he was living in an artistic coterie which included Racine, Chapelle, and Antoine Furctière, and it was no doubt in the intercourse which he had with them that he gained many ideas for his 1rt were included the first four cantos of

successfully dealt with by employing in 1683, but they are not equal in lead plaster or glycerine and Lellaquality to his earlier work. The donna. Reynolds' treatment consists Jalogue des héros de Roman, which of administering large doses of well-was published in 1713, and practically diluted sulphuric acid every four killed the vogue of romantic novels, had been written long previously. He was elected a member of the Academy, by the king's wish, in 1684; he made many enemies by his satires, and his death was probably hastened by the activity of the Jesuits against him. He was for a long time unduly decried, but now is assessed at possibly more than his proper value.

Boiler is the term applied to vessel in which steam is generated for the purpose of driving a steam engine of some type. The essentials of a boiler are a closed vessel, holding the water and generated steam, fitted with means for supplying water and allowing the steam to escape. In addition there must be a furnace for supplying the heat, and appliances for determining the level of the water in the B. and the pressure of the steam. Further, there must be some system of safety valves for the automatic escape of any excess of steam pressure generated; while a chimney must be added at some place for the escape of the waste products of combustion, and for the formation of a draught to supply air for the working of the processes of combustion

Main types of boilers .- Bs. may be classified under two heads, according to the arrangement of the heating and water chambers. If the heating gases be carried through tubes sur-rounded by water spaces, then the Bs. are tubular; while if the steam and water be carried in tubes passing through the furnace gases, then the B. is of the tubulous type. In any type of B, there must be at least a flame chamber and a steam and water reservoir, placed adjacent to each other. The relative positions of these give rise to the two main divisions of Bs., as shown above. Any further gained many ideas for his 11th development of the flame chamber Poclique, which appeared in 1674. In leads to still further subdivision. The this work he taught the value of flame chamber must always consist of artistic workmanship for its own a furnace and an ashpan separated by sake, and reduced versification to a grate. These may be followed by a rule: Pope was greatly influenced by well-defined combustion chamber, or it, and Eng. literature through Pope. may lead straight to the flame pas-In the same vol. as the Art Poclique sages or tubes, lat the end of which In the same vol. as the Art Pottique sages or tubes, at the end of which were included the first four cantos of will be a smoke box leading to the Le Lutrin, and the first four of hie funned or chimney. When the comEpistles, Le Lutrin, which is one of bustion chamber is not well-defined, his best known works, is a serio-comic, a boiler of the locomotive or Lanepic; his epistles are characterised cashire type is obtained, while on the by a graver tone, as well as a more other hand, awell-defined combustion polished style, than his satires. He chamber in a tubular B. gives rise to was appointed historiographer to the the marine or Scotch boiler. king in 1677, and from that time his

Efficiency of boilers .- The efficiency

of a B. is, in the first place, estimated are placed very closely together, thus by the percentage of the total quantity of heat which would be produced by perfect combustion, which is utilised in evaporating the water in the boiler. A great factor in this determination is the amount of coal which can be burnt, and this depends to a great extent upon the area of the grate and the air supply. Its value obviously is further determined by freedom from breakdowns.

Grates.-The grates on which the coal is burnt are usually made of steel or wrought-iron bars, from 1 in. to 1 in. wide on top, and from 1 in. to 2 in. apart. Care is taken with these bars to leave very little room between the sides of the furnace and the bars in order to prevent an inrush of air with a consequently high temperature at these points. These bars rest upon two crossbars at each end, while at the door end there is a broad plate, to

doors. A rate is a bridg the furnace a ırds to the flues.

Natural and found dumant - Combustion of and tubes · of

air above An excess or insufficiency of air leads to a lowering of the efficiency of the B. When a funnel is provided, the weight of the hot column of air measured above the grate is much less than that of a similar column of cold air outside. This causes a tendency to displacement which gives rise to a natural draught. In many cases, however, it is found necessary to force the draught in order to obtain a greater evaporative capacity from the Bs. and to obviate the loss of heat in the chimney or funnel, for under forced draught a very large proportion of the available heat in the gases, resulting from the burning of coal, is utilised before the funnel is reached. Many systems have been tried, among which may be mentioned those which were formed by placing steam jets above the furnace doors, allowing them to blow steam or air over the grate, and that of blowing steam or air through a closed ashpit. An adaptation of this latter system obtains in the Meldrum and Niclausse furnaces, and this system generally obtains now for all types of land Bs. It con-sists of two steam jets, fixed to the front of a closed ashpit, and projecting through this to a distance of about one-third of the length of the grate, with enlarged trumpet-shaped ends. In the former system a closed furnice. The steam utilised in the jets is first lined with fire-brick is employed, passed through a superheater in the From a hopper the powdered coul front of the furnace, and the fire-bars drops into a worm and passes into a

allowing for the use of coal dust and other inferior fuels. By raising a lever the plate at the front of the furnace can be raised to allow of a current of air above the grate. This causes the combustion of the smoke, so preventing the formation of smoke and causing a more complete com-bustion of the fuel to occur. The obviously is further determined by evaporative power of 13s. thus fitted the length of the life of the B. and its has been proved to be much increased, and further, the action of the steam and air prevents the formation of clinkers, so improving the life of the bars. A further system is that founded by Howden. It is extensively used in ships of all nationalities, and consists of heated air being forced into closed ashpits, and simultaneously over the surface of the grate. Another system was applied by Thornycroft to tor-pedo boats, and consisted in closing the stoke-holds and forcing air into them by means of fans. It was applied to larger ships, but failed owing to the fact that it greatly increases the coal consumption in proportion to the extra power gained, and further to the fact that it caused furnace crowns to drop in and leaky tubes to appear. Fans in the funnel, or forcing air through the ashpit, may be further mentioned as other means of causing forced draught, which are employed in the mercantile marine.

stoking. -- Another Mechanical method of obtaining the maximum power from Bs. is that of mechanical stoking, in order to gain a regular combustion of coal. A system which has been used by Messrs. Balcock and Wilcox and others is one in which a number of endless moving chains form the grate. The coal is spread evenly over the surface of the chains at the door, and is completely burnt on arrival at the bridge. Another form of mechanical stoker has been employed on the same type of B., and consists of a large hopper placed over a trough, fitted with a screw which recedes to the back of the furnace. As the coal falls into the trough it is crushed, and is then carried by the screw to the far end of the furnace. On its way it is completely burned. Proctor's mechanical stoker operates a shovel, and moves the bars of the grate, so acting to some extent in the same manner as a human stoker, only with precise regularity, and it further gives a constantly even layer of coal. Another mechanical system is that which utilises powdered coal. This which utilises powdered coal. This is represented in England by the cyclone and Schwartzkopff systems.

air into the furnace, where it burns, leaving a very fine white ash. In the latter system the powder is contained in a hopper with a loose side plate. Below this a hammer periodically strikes the plate, causing some of the powder to fall on to a revolving brush, which throws it into the furnace with This furnace, again, is a little air. made of fire-brick, and causes a white flame, with an ash mostly left in the flues. None of these systems is of very great use for marine Bs., in which type hand stoking still prevails. flues.

Boiler

Transmission of heat.—Heat is transmitted from the gases to the metal separating them from the water and from thence to the water. It is known that the gases transmit their heat to the metal much less readily than the metal does to the water, and it is known that the deposits from the water which cover the bottom plates of a B. are bad conductors of heat, which tend to lower the efficiency of the B. It is also agreed that to increase the heating surface (by the use of tubes) to more than 40-60 times the grate surface is useless. In tubulous Bs. of free circulation the first set of tubes in contact with the flame do 60 per cent. of the total evaporation performed by the B. If the surface of the plates he allowed to the surface of the plates be allowed to get dirty then the power of the B. is diminished. Since steam is a poor conductor of heat it is necessary to prevent steam bubbles from remaining on the sides of the B. In tubulous Bs. the circulation is fairly rapid. tubular Bs. the circulation must be aided in one way or another.

Loss of heat.—To prevent the loss

of heat from the surface of Bs. by radiation, they are covered with some non-conducting substance. The lagnon-conducting substance.

ging employed may be a coating of felt about 1 in. to 2 in. thick. This lagging has been found by tests to be the best, although it suffers under the disadvantage of being combustible at high temperatures. Other laggings em-ployed are asbestos, silicate cotton, and magnesia blocks. The smoke box is lagged by means of baffles and a coating of some one of these non-conductors, while the funnel of steamers is insulated by means of an air casing ! round the funnel proper. Tubulous Bs., as will be seen from their description later on, need this lagging even more than do tubular Bs., for the casing in many cases is directly a portion of the furnace walls. In these cases the non-conductor is brickwork covered with ashes between plates.

Wearing and corresion.—In marine Bs. one of the chief causes of wear is

fan from whence it is discharged with in it, and under the influences of heat and water it yields magnesia and hydrochloric acids. These act corrosively on the B., and to prevent this, lime is sometimes used. Again, when regetable oils and grease are used on the engines some proportion finds its way to the Bs., and the fatty acids cause great corrosion. Carbonate of soda is sometimes used to neutralise this, but it has a bad effect of its own. so lime has to be relied on. Again, Bs. are fitted with a surface blow off, in order that the greasy substances floating on the water may be removed, for if allowed to settle they form a coating which is a very poor conductor of heat, thus causing plates to become overheated, and the consequent collapsing of fire boxes. To prevent corrosion zine plates are hung in the Bs. by means of copper strips. This zinc combines with the acids in the way. It also · he iron in act. an · reducing Mineral its

oils as now used for lubrication, also have violent corrosive effects, and to the use of zinc plates, a frequent use of the surface blow off is necessary. Even then deposits of these greasy substances occur, and it is therefore necessary to wash Bs. out sometimes with caustic soda, to free the B. from

these impurities.

Production of heat in boilers.—As ecen, forced been daught. mechanical stoking, and an increase in the heating surface, all lead to a more economical use of the heating effects of fires, and consequently tend to raise the efficiency of Bs. Theoretically just over 11 lbs. of air are needed to burn completely 1 lb. of average coal; but practically it has been found that about twice as much air is needed either with forced or natural draught. In tubular Bs. it is found that about 25 to 30 per cent. of the heat generated is lost in the funnel, and by an excesof air which cools the gases down. In tubulous Bs. the loss of heat is about 20 to 25 per cent. Careful stoking also adds to the efficiency of a B. In tubular Bs. a concave fire is probably the best, as it gives the greatest heat, where the water is nearest to the flames, while with natural or forced draught the thinner the fire greater the chance of perfect combustion. The ideal either with natural or forced daught is a mean thickness of fire of from 4 to 6 in. Thus small charges frequently added are the best With natural means of stoking. draught the fire should never be thicker than 8 in., while with forced draught it may vary from 10 to 15 in.. the introduction into the B. of sea according to the draught. Fires of water. This has magnesium chloride this thickness lighten the stokers' according to the draught. Fires of work, but do not tend to a perfect is necessary to have about 8 in. of combustion of the coal or an ideal water above the top of the combusefficiency of the B. Soot in the tubes tion chamber. Gauge glasses are acts as a poor conductor of heat, and lessens the B.'s efficiency, and this again is an added reason for careful stoking, and it further leads to the fact that these tubes need constant cleaning.

Priming.—A cause of variations in the steam pressure (and a result of these variations) is priming—bubbles of steam uniting at the surface and passing over with the steam into the cylinders as a sort of emulsion. stop valve be opened too suddenly, a lowering of the pressure in the B. takes place, and the steam being formed more rapidly, causes these bubbles to rise violently, giving rise to priming. It is prevented by the use of anti-priming pipes, and by taking off the steam at a point as far removed as possible from the water surface. A large steam space and a high pressure prevent priming. A layer of mineral oil used to be placed on the surface of the B. water, as it was found to prevent priming, but it does not float long, but settles as a deposit on the bottom, as a non-conducting deposit capable of doing great damage.

Feed-water heaters and economisers. In order to increase the efficiency of a B. it will be seen that it is advantageous to heat the water before it reaches the B. This is done in several ways. On tubulous Bs. they are generally an integral part of the B. Other forms are those where the economiser utilises the waste gases in the flue; a series of pipes being placed at the base of the chimney so that the escaping gases pass round the feed water; while in another system the exhaust steam is used to heat the feed

water.

Superheaters and separators.—To transform the wet steam formed into dry steam necessitates the use of one or other of these two means. A separator is usually employed with tubulous Bs., and consists of a vertical cylinder with a centre baffle which causes the steam to strike against the sides and deposit the water at the bottom from whence it is drained by a drain cock usually worked automatically. Superheaters act by drythe steam with extra heat, and are and ployed on tubulous Bs., and somenow no Re da storm in funnel on sists Te Bs. As steam is a bad consists to of heat large heating surfaces front of he used and the consequence ing throng used and the consequence not used one-tl hough on with ht are not The s they are

Gauge glasses are fitted to the Bs. of all types, so that the level can be read, for it is evident that in any B. the amount of water present is of vital importance. In order that no accident can happen which will render the level unknowable, it is usual to have two gauge glasses. Further, all Bs. are fitted with (usually) two safety valves. These valves are set to the pressure which the B. is intended to, and can safely, carry. They are locked up in such a manner that while the weight on them can be eased, so that they may allow the steam to blow off at a lower pressure than the designed one, yet it is impossible to screw them up to blow off at a higher pressure. This, of course, is a safe ing and reckle

designed in suc are capable of

pressure at a very quick rate; so that it is almost impossible for the pressure in a B. to get much above the designed pressure, however quickly the steam may be accumulating. Further there must be an injector or a feed pump for filling the B. with water, and supplying it with reserves to take the place of losses. Sometimes the

to have n whose er in the

boilers is kept within safe limits.

Cylindrical land boilers.—For land purposes a very common form of B. is that known as the Cornish, with its three variants, the Lancashire, Galloway, and Economic Bs. The Cornish consists of a long horizontal cylinder with flat ends, having a long tube stretching from end to end within it. The outer ring contains the water, and at one end of the inner tube a furnace is fixed. The other end is connected with the chimney. Cross tubes run through the inner tube connecting the water above and below the furnace tube, so increasing the heating surface and facilitating the circulation of the water in the B. Lancashire B. is similar to this except that it has two large tubes running through the outer shell; thus it has

a bigger generating power since it possesses two furnaces. They can carry a large steam pressure and can hold a good supply of steam. They are used in those cases where a heavy reserve of steam is required. The Galloway B. is an improvement on the Lancashire B. In this the two furnace tubes are merged behind the fires into one long kidney-shaped tube. front of the furl—In tubular Bs. it number of conical tubes which serve

purposes. Ins. D. has a much greater fused with the tubulous B., which is evaporative efficiency than the ordinals of heated externally, but as will ary Lancashire. They take up rather be shown, has water tubes passing a lot of ground, being long and horisthrough the heating space. It is not zontal, a common size being 30 ft. an economic or efficient type of B., long, by 8 ft. diameter; but because and has largely gone out of use, also their great power and reserve, though it is used in places where fuel which enables them to keep steam of poor quality can easily be obtained. easily once it is obtained, and because meter. It is fitted with small tubes risen to beyond 200, and in tubulous which run from end to end of the B. Bs. to beyond 300. The rectangular

as in the Lancashire B. for heating means of a furnace placed under the surface increase and for circulatory B. This type of B. must not be conpurposes. This B. has a much greater fused with the tubulous B., which is

Marine boilers .- The Bs. of this of the ease with which the heating name are cylindrical return tube Bs., striaces can be reached for cleaning and they are sometimes called Scotch purposes, they are in great demand. Bs. Before these Bs. were introduced. The Cornish, of course, can only rive rectangular Bs. on the same principle a moderate quantity of steam. The were used. They would only stand Economic B. occupies much less space pressures up to 17 lbs. per sq. in. than the other types, being just about while cylindrical Bs. started with half as long in proportion to its dia-pressures of 55 lbs., which now have

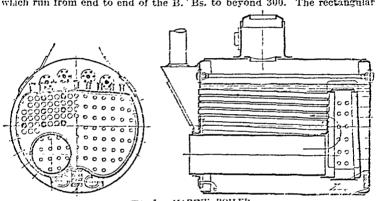


FIG. 1 .- MARINE BOILER

above the furnace tubes. At the back a combustion chamber, lined with fire-brick, takes the products of combustion, which then return through the tubes above to the smoke box in front of the B. above the furnaces. and so to the chimney. Since it has a large heating surface it tends to. the economic uses of the fuel, and at the same time it can be almost as easily examined as the other types mentioned above. It is therefore to be preferred where the space available is not too great. Further the stoking . is not so hard on these as on the others. although with forced draught any of them will stoke rather easily.

Egg-ended boilers. - All the Bs. mentioned above are internally fired.

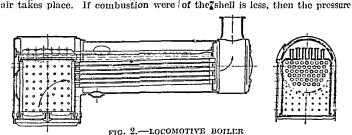
form required staying in three directions, but the cylindrical only in one. and further, the cylindrical is by far the best form for withstanding pressures, although the rectangular would have suited the form of the stokehold best. Some marine Bs. were made of two half cylinderjoined at the sides by flat plates, so making their height greater than their breadth. It was known as the elliptical type, but it has gone out of use now. In marine tubular or Scotch Be. the furnaces, combustion chamber, and tubes leading to the smoke box are surrounded by water. As will be seen from Fig. 1, the hot gases pas-from the furnace to the combustion chamber, and thence through the The furnaces are surrounded by the, tubes above the furnace tube to the water to be heated, and are inside the smoke box which is outside the B. shell of the B. Before these types of There may be from one to four fur-Bs. were introduced, an externally naces in this type B., but when there Bs. were introduced, an externally mass in this will be are placed on of a long cylindrical R having hemi-different levels. The furnace tubes -pherical ends, which was heated by are cylindrical and may vary in diameter from 2 ft. 6 in. to 3 ft. 6 in. If space over two single ended Bs. the number of furnaces be increased placed end to end of 1 foot, and the and the diameter decreased, then a greater quantity of coal can be consumed, since the grate area will be greater. On the other hand, it is found that the larger the diameter and the less the number of furnaces, the more perfect is the combustion. and the greater the production of steam. But in practice the size of the furnace tubes is limited by the fact that the liability to collapse gets greater the larger the diameter of the tube gets. The smaller the diameter of the tube the greater the strength. The combustion chamber at the back is usually made equal to half the diameter of the furnace tubes plus 12 in. naces,

is reversed, and a consequent intimate be room for return tube Bs. under the mixing of the combustible gases and armoured deck. Since the diameter

thickness of two water spaces behind the combustion chambers and at least 3 ft. which would have to be left between the two Bs. It was found that on applying forced draught to this type, however, that leaky tubes re-sulted, so a combustion chamber was provided for each end. On some liners again, a combustion chamber is provided for the two corresponding furnaces at opposite ends.

Another t instead of tubes abor are continu

furnace, at the same height, but on the opposite side of the combustion chamber. This type of B. is valuable on gunboats, where there would not



since

funnel. Sometimes the combustion chamber is common to all the furnaces, with, of necessity, all the tubes start-ing from it. In other types there is a combustion chamber for each furnace, with water spaces between. These spaces increase the heating surfaces, and keep the flames proportionately In the mercantile marine divided. the combustion chamber is usually common to all the furnaces, while in the navy the combustion chamber is usually subdivided; because forced draught with one combustion chamber would cause unequal heating of the tubes. Sometimes these Bs. are fired from each end, and are known as double-ended Bs. It is on merchant ships that they are of greatest use. combustion then have a chamber common to both ends. This type does away with the water space at the back of the combustion chamber, which gives trouble con-tinually on account of the stays. The combustion chamber is usually made

perfect, as it never is, then there can be greatly increased, and further, would be no smoke nor flames in the the tubes can be made longer or shorter than the length of the furnace tubes. Several disadvantages, however, follow from the use of this type B., and it is fulling into disuse. furnace crowns and the top of the combustion chamber are liable to overheating, because they are so near the water level. Further, it is liable to unequal expansion, and only gives a feeble circulation of the water. It is called the Admiralty B, because at one

time it was largely used in the navy.

Locomotive boilers.—These are distinguished by the arrangement of their furnaces. The sides and crown of this type of B. are flat (Fig. 2), and the fire-box is open to the air, so that the draught varies with the speed of the train. The furnace plates are all made of steel, although the back or tube plate used to be made of copper. Around the furnace the sides of the B. are flat, and the sides of the furnace and the B. are stayed to each other, while the top of the B. is semicircular, with the flat or nearly flat furnace crown suspended from it by stays. 1 foot greater than the diameter of crown suspended from it by stays, the furnace. This leads to a saving in From the furnace to the front part of

little head room, and are capable of forcing, and that they are proportionately light when compared with cy indrical return tute Bs., they were used in the navies of various countries with certain modifications. They are also sometimes used for stationary engines. To add to the draught the exhaust steam is led into the fumel (when it is not condensed). The marine type of locomotive B. has thegrate much higher up than in the railway type because of the head roon. This, of course, reduces the size of the combustion chamber, while the length of the B. must be less than that of locomotives, thus giving shorter tubes. For various reasons this type of B. has given place at sea to tubulous Bs., which are beginning further to oust the arging of the place of are beginning further to oust the cylindrical Bs. on larger vessels. A railway B. is in use for five or six hours, and is then thoroughly overhauled and cleaned, while the opening of the furnace doors does not mean a sudden inrush of cold air which is the case with marine Bs., where the progressive inside is loss than where the pressure inside is less than that outside the furnace. Again, a locomotive runs smoothly, and the danger of exposure of the furnace crown, without water, to heat is greater with the flat crowns of loco-motive Bs. than with the circular crowns of cylindrical Bs. As a rail-way engine B. it stands supreme, Lecause of its capability to regulate its draught to its speed, and Lecause, owing to the large area of heating surface surrounded by small water spaces, it is able to generate and keep steam easily and in great volume.

Tubulous boilers.—This is an en-

tirely different type of B. from the tubular, and the chief point of difference is that whereas in the tubular B. the heating gases were surrounded by water, in the tubulous B. the heating gases surround the water. Whereas in the tubular the tubes were subject to compression, they type or another of tubulous B. is now generally used where high pressures

the B. extends a cylindrical shell steam. They are employed at sea on called the barrel, along which stretch very long, narrow tules from the back plate of the furnace to the smoke-box. These tubes act as stays for the tube plate of the furnace and the end plate of the boiler. The fire-box being high acts as a combustion chamber. These Bs., of lourse, were invented to suit the purposes of the locomotive, but resist bursting. Therefore, since owing to the fact that they take up tubulous Bs. are composed of small little head room, and are capable of tubes. they are sometimes known as tubes, they are sometimes known as safety Bs. Added to the fact of the smallness of the tules the danger of bursting is limited to single tubes. and further, only a small quantity of water is contained in them in proof water is contained in then in proportion to that in the tubular B. Tubulous Bs. are easy to clean and repair, and the component parts being small, they are portable and allow of the fixing of the Bs. in small buildings with ordinary openings.

Dellaring holds—This R is extensional parts and the second parts of the Bs. in small buildings with ordinary openings.

Belleville boiler .- This B. is extensively used in the various navies, and is one of the type with 'limited circulation.' It consists of a number of elements, each containing two parallel rows of tubes, inclined two or three degrees from the horizontal. Those of one row incline in the opposite way to those in the other row, and are connected with them at each end by junction caps, thus forming a flattened spiral. In a large B. there would be from ten to twelve of there would be from ten to tweeve of these elements. The water level is about halfway up these tubes. At the top of these is a steam reservoir, while the water is supplied to the bottom pipe of each element. The bottom pipe of each element. The circulation of the water is caused by the difference in the density of the water flowing in at the bottom, and the density of the mixture of steam and water at the top of the tubes. Before the water enters the lower spiral of pipes it has to pass through a smaller spiral at the top of the B. proper, which acts as an economiser. heating the water before it is introduced to the B. proper. The water passes from the economiser into the steam drum, and any steam present is separated out. It then passes down a pipe to the feed collector, with a settling drum for collecting impurities, into the bottom spiral and back to the steam drum. The furnace is under the lower set of pipes, and the heating gases pass up between the spirals of both the B. proper and the economiser. It has only a small comare in the tubulous subject to tensile bustion space, and therefore needs strain or expansion. On land one air compressors, and since automatic feed regulators are used on them, they require a more or less skilled are required, and where there is a staff. A Boiler Commission, ap-continuous round of stokers not pointed by the Admiralty in 1901, necessitating any heavy reserve of reported unfavourably on them atja

time when the French navy de- under a test pressure of 150 lbs-scribed them as the most reliable, except in rare cases. The mud drum They can certainly be repaired easily, and the dangers of an explosion are not so great as with tubular Bs., while on the other hand, the dangers from pitting of the thin tubes are

always present.

Babcock and Wilcox boiler.—This is one of the type of tubulous Bs. known as 'free circulation' B. With the Bs. with 'limited circulation' steam is apt to collect in lower rows of tubes through insufficient circulation, and priming sometimes occurs and thence to the chimney. The water through the absence of a steam chamber. To obviate this, Bs. with

is of cast iron. The whole is susis of case non. The whole of the sides one eneased in brickwork. The fires are built under the front higher end of the tubes, and the heating gases pass between the tubes into a combustion chamber under the steam and water drum. From there they are caused by brickwork baffles to pass down again between the tubes, as shown, and again up through then, inclined tubes for generating steam, the top end of the tubes, and there connecting two vertical water spaces, through the front vertical space into

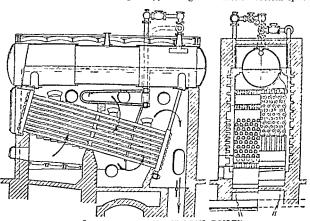
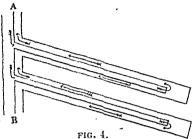


FIG. 3.—BABCOCK AND WILCOX BOILER

surmounted by a steam drum, have | the drum where the steam is separated From Fig. 3 it will be and Wilcox. seen that it consists of tubes made of wrought iron or steel, placed in an inclined position and connected with a horizontal steam and water drum by means of vertical passages at each end, with a mud drum at the lowest rear point of the tubes. Each vertical row of tubes joins on to one piece at each end, and the inclined tubes are 'staggered,' or placed in such a position that each horizontal row comes over the spaces in the row beneath. There are openings opposite into a **U**-shape, connected with be the end of each tube covered by hand is shown under the steam drum. 300 lbs. per square inch at the joints. superheated steam, after passing The drums are made of flange iron through the tubes to a valve above or steel, and are designed for all the B. The advantages of superpressures, though none are made heating the steam are that it has a

come into use, and one of the best from the water, and the latter flows known forms of these is the Babcock down the rear vertical space into the down the rear vertical space into the tubes again. The passages all being large and free, a rapid free circulation is provided, which sweeps away the steam as fast as it is formed, and at the same time replaces it by water. This causes a rapid mixing of the water in the B., so maintaining an even temperature throughout with a further sweeping away of a large proportion of the deposits otherwise likely to encrust the tubes. likely to encruse on the diagram accompanying, a superheater, consisting of steel tubes bent into a U-shape, connected with boxes, the steam drum. The hole plates, for cleaning purposes, upper box receives the steam from and are made to stand pressures of the B., and the lower one returns the

higher temperature than the water from which it is evaporated, so that water cannot exist in its presence. The result is that the loss due to condensation in pipes and cylinders of the engines is lessened. For naval

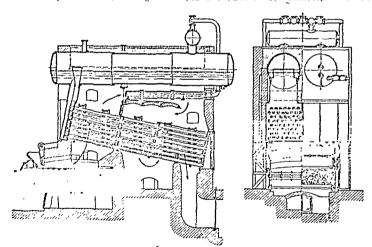


purposes the tubes are replaced by boxes of from four to six inches in diameter, inclined in the opposite direction, with the B. across the front instead of reaching back. In the mercantile type the tubes are from three to four inches in diameter, with or water space, and that at the front oval hand plates for cleaning. The of the tubes. It consists, as do all

shown, possess the common advantage of tubulous Bs. over tubular of being less liable to dangerous explosions. Further, since the water level is in the steam drum above the tubes, they are not so liable to over-heating of the tubes as are those tubulous Bs. of limited circulation, typified by the Belleville, which has no large steam drum, and in which the water level is not accurately known. It possesses further the ad-vantages that the construction and circulation is simple, and the tubes are straight and jointed by expansion—not screwing. They are, therefore, easily replaced, inspected, or repaired. The grate area is large, and ample space is allowed for combustion. The inclined position of the tubes is for the purpose of getting the flames at right angles as near as possible to the heating surface, so obtaining the maximum heat from them.

Niclausse boiler.—This B. may be

said to be a variation of the Babcock and Wilcox, and all allied forms such as the Simonis-Lanz and Steinmuller.



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FIG. 5 .- DURR BOILER

extra size in the tubes saves weight, these variations of the two water-and through their greater capacity space, free-circulation boilers, of a ensure a cool casing. Being slightly series of inclined compound tubes, thicker than the smaller tubes they joined up to the front vertical header, can withstand wear and tear which and closed at the far end. In order to may ensue from the pie-tools, and Lain circulation the header is divided, they are also better adapted for pre- as is simply illustrated in Fig. 4, by venting the adherence of clinkers, a vertical diaphragm. AB. The m-They are considerably lighter than clined tubes are double, and the inner cylindrical Bs., and, as has been tube connects up with the outer into

portion of the header, while the outer, tube connects with the inner portion Thus circulation is maintained by the water passing from the B. down the front compartment of the header through the inner tubes, whence the steam water generated passes through

the outer tubes and back through the rear compartment of the header to the steam and water drum. When superheaters are applied to this class of B., it is placed in the centre of the nest of tubes, about halfway up, and not directly under the steam drum. Durr boiler.—The (D) Durr B. (Fig. 5) is similar to Niclausse in that it l has only one header, but this header is used for all the tubes, whereas the Niclausse headers are divided separate elements for each vertical row

of tubes. FIG. 6.—VERTICAL Niclausse and Durr Bs. are largely used BOILER inthe various

navies. The Durr B. can be entirely dismounted from the front, and the tubes are slightly bent, so that they almost touch each other, forming almost a tube wall.

Stirling boiler.—The above are types of Bs. with free or limited cir-culation. We now pass on to a con-sideration of tubulous Bs. with accolerated circulation. This type of B. is important in some kinds of work, such as, for example, naval work, for they allow of higher rates of forcing than do those with free or accelerated circulation, although the makers of free circulation Bs. are by their gaining a deal

ith accelerated to steam and

water circulates more rapidly than does the steam in a Belleville, or than the steam and water in a B. with free circulation. The steam bubbles are carried away as fast as they form, and cannot accumulate, forming steam chambers, however great the evapora-This is done by letting the steam and water circulate through high columns and by placing the tubes carrying the water from the steam and water drum to the bottom reservoir in such a manner that a ling power, direct circuit is obtained, with the so that higher pressures can be safely tubes carrying the steam back to the looked forward to as being applicable.

drum at the top. One form of this type of B. is the Stirling B., which is chosen because it is used both on land and at sea. It consists of two or more drums at the top, joined together by short horizontal tubes. These top drums are connected to bottom drums by means of long tubes inclined slightly to the vertical, and bent at their ends to join radially to the drums. The feed water first passes into the back top drum, so that the back row of tubes really forms a feed heater, and sediment and scale is either deposited in them or in the back half of the bottom drum, because of a perforated baffle which is placed in the centre of it. So it passes through the tubes and drums gradually to the front bank of tubes in which most of the steam generating is done, and done well, because of the removal of impurities. The steam generated passes from the top front the drum by means of the horizontal tubes to the back drum again, separating from the water on the way. The circulation of the heating gases is across and up and down the heating tubes, and the large combustion chamber secures better combustion than with other types, which have the tubes close over the grate. Both the | facilitate the removal of any one tube in repairing without removing others. one tube is left

> of each bank of tubes. Advantages of tubulous boilers. -The reasons for the gradual extension of the use of tubulous boilers may be summed up as They follows. are capable of standing very pressures high owing to the fact that they are composed of elecylindrical ments of very small diameter, and the smaller the diameter the the greater

out in the centre

strength to resist FIG. 7.—VERTICAL bursting. On BOILER some tubulous

Bs. pressures of 440 lbs. have been used; and the only limiting power seems to be that of the temperature are con-

to engine power.

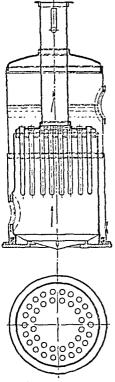


FIG. 8.—FIELD BOILER

not likely to be so great in the immediate vicinity, and they will certainly not be so disastrous to lar B. For marine purposes an added advantage is that they are proportionately lighter than tubular Bs. ally with those having accelerated circulation, the distress to the working parts is less than in tubular Bs., while, further, they can raise steam

Now cylindrical quicker and can be repaired and reto engine power. Now cylindrical quicker and can be repaired and retubular Bs, have a maximum power placed in parts piecemeal without the which depends upon the thickness of the shell plates, and difficulties in the spaces. On the other hand, owing to construction of the furnaces. Again, since tubulous Bs. can support higher perhaps more liable to pitting, and pressures, and since the volume of may therefore require more frequent steam and water contained in them replacing in parts than do tubular is small, they are less liable to cause Bs., and further they require good serious accidents of a large nature management and exceptional care than tubular Bs. The results from and pure feed water, the attempts to the explosion of a tubulous B are use sea water as for example, in the the explosion of a tubulous B. are use sea water, as for example, in the Belleville B., having failed.

Vertical boilers.—A minor type of B. which is only used where steam is required for small engines, cranes, or pumps, is the vertical B. They are fired internally, and since they are made in three types. One of these may be represented by Fig. 6, which consists of a vertical collision. consists of a vertical cylindrical shell having a fire-box and single flue, or up-take, between the fire-box and the B. shell, fitted with cross tubes for the Another form, again, is that water. shown in Fig. 7, which has the flue divided into several vertical tubes, each surrounded by water. Cochran B., again, has a combustion chamber and horizontal return tubes (within a vertical cylindrical shell) leading to an external smoke-box, similar to the marine return tube B. The Field B. (Fig. 8) was the fore-runner of the tubulous B., with accelerated circulation, and, as will be a constant to diagram is a varified seen from the diagram, is a vertical cylindrical B., with a large fire-box. leading to a single central uptake. From the top of the fire-box are suspended vertical water tubes, which cause a circulation of the water leading to an accelerated steam supply. See L. E. Bertin, Marine Boilers; R. D. Monro, Steam Boilers; L. S. Robertson, Water Tube Boilers. Also Hütte, Taschenbuch des Ingenieurs.

Boiling, see Cookery.

Boiling of Fluids, see FLUIDS.
Boiling of Water, see WATER.
Bois, John (1561-1644), translator
of the Bible, was educated at St.
John's and Magdalen colleges, Cam-He became a fellow of St. John's in 1580, and Greek lecturer at Cambridge during the years 1581-94. He was appointed one of the Cambridge translators for King James's Bible in 1604, and member of the Board of Revision. He translated a surrounding buildings as would be portion of the Apocrypha and of the the results of the explosion of a tubus sections from Chronicles to the Canticles. He also assisted in Sir Henry Savile's edition of Chrysostom(printed in 1610-13). He became prebendary Again, under forced draught, especi- of Ely in 1615, and published atreatise on Greek accents in 1620. His critical notes on passages in the Greek testament appeared posthumously in 1655.

Bois-Brûles, a race of N. Americans.

Canadians and native Indian women, more generally known as half-breeds.

Bois de Boulogne, a public park of Paris which has many walks, the largest of which forms a fashionable promenade.

Boisé, cap. of Idaho and Ada co. in the U.S., is situated on the Boisé R. in a mining dist. It is a military city, and though the chief industry is

mining, it is also a shipping and manufacturing place. Pop. 6000.

Boisgobey, Fortune du (1824-91), Fr. novelist, was born at Granville in Normandy. He became paymaster to the Algerian army, but in 1868 took to writing popular sensational stories after the style of Gaboriau, many of which have been trans. The most after the style of trans. The most which have been trans. The most noteworthy are L'homme sans Nom, veau Paris, 18 1880: and $L\epsilon$

he Netherlar tion of the As and the Dommel, 28 m. S.S.E. of Utrecht. It has a cathedral and an art academy. There are some iron foundries, and books, woollens, cut-

lery, etc., are manufactured. Pop. 27,000.

Boisserée, Sulpice (1783-1854), in conjunction with his brother Melchior and a friend Bertram, were led to bring together the notable collection of 200 paintings which was afterwards sold to the King of Bavaria. This collection of early German paintings was the work of more than twentyfive years' devotion to the search, and is now in the Munich Pinakothek. B. spent many years in an endeavour to bring about the restoration of the cathedral at Cologne, and wrote sev. works of importance. His biography, Sulpiz Boisserée, has been published by his widow.

Boissonade, Jean François (1774-1857), a Fr. philologist, was born in Paris. In 1812 he was appointed professor of Gk. in the Academy of Paris, and was admitted a member of the Academy of Inscriptions: becoming professor of Greek in the College of France in 1828. He wrote a number of papers on philological matters and contributed frequently to the Bio-

graphic Universelle.

Boissy d'Anglas, François-Antoine, Count of (1756-1826), Fr. statesman, was born at St. Jean-la-Chambre in Ardèche, and died in Paris. He became a member of the States-General, and in 1794 aided the conspiracy to overthrow Robespierre. He was next elected secretary of the Convention and member of the Committee of Public Safety, in which office he had to face the hatred of he people. His last honours were his presidency of the

largely the descendants of French-| Council of Five Hundred, senatorship under Napoleon, and his elevation to the peerage by Louis XVIII. He wrote Recherches sur la vic, les écrils et les opinions de Malesherbes, 1819; and Etudes littéraires et poétiques d'un vicillard, 1826.

Boito, Arrigo (1842). It. composer, was born at Padua and studied at the

Milan much i

land, and in 1868 produced his opera Mefistofele at the Scala of Milan. It met with an extraordinary reception of mingled applause and hisses, and proved a failure, yet it has had much influence on L. composers, such as Verdi, Mascagni, and Leoncavallo. His other operas, which have never been produced, are *Ero e Leandro* and Nerone. He has written librettes for his own works and those of other musicians, and has also pub. songs, novels, critiques, and dramas.

Boivin, Marie Anne Victoire Gillain (1773-1841), was educated at a convent and studied midwifery for three years at Etampes. At Versailles she years at Editinges. At versames on a reid Boivin, and being soon left a widow obtained a post in the Maternity Hospital, and induced Chaptal to found the school of accouclement. She wrote Mémorial de l'Art des Accouchements, 1812.

Bojador, Cape, a headland of W. Africa first doubled by Portuguese navigators in 1434.

Bojan, a vil. of Austria in Bohemia.

with a pop. of 6000.

Bojano, an It. tn. on the R. Biferno anciently known which was It is an episcopal sec. Bovianum. Pop. about 3500, and commune 6500.

Bojardo, or Boiardo, Matteo Maria, Count of Scandiano (1434-94), It. poet and politician, born at Scandiano. In 1469 he accompanied the Duke of Este to meet Frederick III.; m 1471 accompanied the Marquis of Ferrara to Rome; in 1473 was among the escort of Eleanora of Naples to Ferrara; in 1478 became governor of Reggio; in 1481 Capitano of Modena. and in 1487 governor of Reggio again. His chief poem Orlando Innamorato. which was pub. unfinished in 1495, a long and not uninteresting poem, has been practically forgotten in the Rifacimento on the same theme by Berni, but since it inspired the Orlando Furioso of Arlosto, it cannot be devoid of merit. Hallam praises the poem for 'novel invention and just keeping of character.

Boke, a tn. of Fr. Guinea in W. Africa on the R. Nunez. About 45 m. inland, occupied as a trading fort and

navigable from the coast.

Berlin Academy. See Mill Land und Mecr, i. 426 (1884).

Bokhara, a khanate of Central Asia, bounded on the N. by Russian Tur-kestan, on the W. by Khiva and the Russian Trans-Caspian prov., on the S. by Afghanistan, and on the E. by the Pamir dist. Much of the land is desert waste, relieved only by occa-sional oases, but cultivated areas are found in the valleys of the rivs., in particular that of the Amu Daria, which forms the prin. boundary on the S. In the E., N.E., and in the centre of the khanate there are low mt. ranges. The climate is subject to extremes of cold and heat, and, in view of the small rainfall, it has been necessary to introduce artificial irrigation. Estimates of the area range from 80,000 to 90,000 sq. m., the variations being due to alterations continually being made in the boundaries through conquest and encroachment. The pop. cannot be easily estimated for the same reasons, but may be given roughly as 2,000,000. The prin. tns. are Bokhara and Karshi. with pops. of 70,000 and 25,000 respectively, and there is a considerable. number of this, and vils, in the cultivated areas. The inhab, are chiefly Uzbecks, who are also the ruling race, Kirghizes, Tajiks, Turkomans, Persians, Arabs, Afghans, and Jews. The people are mostly Mo-hammedans, under the gov. of an emir and his subordinate officers. each officer having absolute control in his own district, subject only to the emir, whose movements are, however, to some extent under the con-trol of the Mohammedan priests. The commerce of the country is not very great apart from the caravan trade, but an impetus has been given by the building of a Transcaspian railway, offering greater facilities for trading with Russia. Barley, rice, wheat, cotton, silk, tobacco, wool, indigo, and various fruits are widely

German genre painters, and also noted | are reared, while among the wild for portrait-painting. He was a pupil | animals we find tigers, antelopes, wild of Sohn at Düsseldorf Academy, asses, and numerous smaller varieties. winning fame both for serious and The manufs. are small, but there are humorous scenes. Among his best large and undeveloped mineral rehumorous scenes. Among his best large and undeveloped mineral reworks are; 'House of Sorrow,' 1873; sources. Gold and salt. however, are 'Pawabroker's Shop,' 1876 (in Statt-Gund and exported, though to no gart Gallery); 'Opening of the Will.' 1879 (Berlin National Gallery); 'The Emigrants,' 1882 (Dresden Museum); others are 'Shoemaker's Apprentice,' Dawn of Day,' 'Mountebank,' peoples, who at different times have 'Dawn of Day,' 'Mountebank,' peoples, who at different times have 'Pailure of a Bank,' 'An Itinerant Stall before Christmas,' 'Last Stage of Election Contest,' 'Portrait of Records give us little information as Klaus Groth.' In 1893 professor of to the early inhab., who were Zoroas-Berlin Academy. See Müller, 63; the Arabians, the invaders gradually the Arabians, the invaders gradually the Arabians, the invaders gradually assumed supremacy, eventually establishing the teaching of Islam. people are extremely fanatical and eruel, although education is wide-spread. Colonel Stoddart and Capt. spread. Colone Stoddart and Capic Conolly were sent into the country to treat with the Khan of B., but were imprisoned by him, and after receiv-ing cruel treatment were infamously put to death in 1842. Dr. Wolff visited the country in 1844 to dis-cover their fate, and himself was imprisoned for some months by the Khan, Nasr-Ullah, Continuing a policy of encroachment, the Russians in 1865 had made their way to Tashkend, but were opposed by the Emir, or Khan, Mozafier-Eddin, who was. however, defeated, and the Russians pushed on and took Samarkand. A treaty was concluded in 1868, under which the khan paid an indemnity and ceded Samarkand, Katti Kurg-han, and neighbouring districts to Russia, while promising to protect Russian trade. In 1868 the Russians put down a rebellion, which had purposed to place the khan's eldest son on the throne. Since that time the country has become more and more under Russian rule, although still nominally independent. Among the works bearing on the country may be duoted: Curzon, Russia in Central Asia, 1889; Le Messurier, From London to Bokhara, 1899: O'Dono-van, The Merv Oasis, 1880; and Vambéry, History of Bokhara, 1873. Boksburg, a tn. in the Transvaal, S.

Africa, 13 in. E. of Johannesburg. It has a large mining industry. Pop. 15.000.

Bol, Ferdinand (1611-81), Dutch painter, was born at Dordrecht. While still young, he moved with his parents to Amsterdam, and there the remainder of his life was spent. He studied under Rembrandt, and his work shows many traces of the influence of his master. His subjects were chiefly portraiture. At one public exhibition cultivated, and, to a lesser degree, his master. His subjects were chiefly timber. Sheep, goats (producing portraiture. At one public exhibition shawl-wool), camels, horses, and asses he was declared to have excelled

Rembrandt, but he degenerated into a bad imitator in his later years. Many of his pictures are to be found in the Museum at Amsterdam, while his 'Four Regents of the Leprosy 'egarded as his

Town Hall.
is. of the same
mouth of the

Rio Grande, West Africa.

Bolan Pass is a famous defile in the Hala Mts. of British Beluchistan leading into Sind. It is about 55 m. in length, and its greatest elevation is 3800 tt. On all sides there are steep precipices, and it is traversed by the Bolan R., frequently bridged over. The pass is so narrow that it is easily defended, and it is overlooked by the British fortress at Quetta. A railway has been constructed through it to connect it with the Indus yalley.

Bolaram, a former British military cantonment, now part of Secunderabad, in the state of Hyderabad, India.

Pop. about 10,000.

Bolas (Spanish, balls), a hunting weapon used by natives and gauchos of S. America, especially by the Paraguay Indiansand natives of Argentina. There are two varieties constructed on slightly different principles, one being made of two stone or clay halls covered with leather and connected by a rope or thong of six or cight ft., the other being made of three balls connected by three short thongs which unite to form a long rope. The hunters, on horseback, throw them at the animal in such a way that it entangles its legs and prevents escape.

Bolbec, a Fr. tn. in the dept. of Seine-Inférieure, on the R. Bolbec, 19 m. from Havre. The riv. supplies water power for the mills, and this busy and thriving tn. manufs. cotton, woollen, and linen goods, has dyeworks and tanneries, and trades in grain and cattle. Pop. 11,500.

Bolbocerus is a colcopterous insect of the family Scarabeidae, members of which are usually called chafers. Their most common colour is brown or yellowish, and sometimes black; B. mobilicornis, a pitchy-black species, and B. lestaceus, an ochre-coloured consideration of the property of

and B. testaceus, an ochre-coloured species, have been found in England. Bold, Samuel (1649-1737), controversialist, was made vicar of Shapwick, Dorsetshire, in 1674. He resigned this living, and in 1638 was elected rector of Steeple, Isle of Purbeck, to which Tyncham was united in 1721. Here he remained until 1737. He preached against persecution, and published in 1682 Plca for moderation towards Dissenters, for which he was fined and imprisoned. His works include tracts defending John Locke's philosophy.

Boldrewood, Rolf, is the pseudonym of Thomas Alexander Browne, Anglo-Australian novelist, who was born in London in 1826 and crossed to Australia in 1830. He received a good education, but in 1814 became a squatter in Victoria, and later policemagistrate and commissioner of the New S. Wales goldfields. In 1888 he pub. his most popular work, Robbery under Arms, and in 1894 A Modern Buccancer. He retired from the goldfields in 1895, and has since written many stories of adventure.

Bole, hydrous aluminium and iron silicates, found in Armenia, Saxony, Tuscany, S. America, Ireland, and the isle of Skye in Scotland. In form the substance resembles clay, and is of a dull yellow, brown, or red colour, while it adheres to the tongue, feels greasy, is yielding, and has a conchoidal fracture, and the streak is shining. The prin. varieties are Armenian and Lemnian, which are used as

only to Boler quicker

is applicable also to the dance-music. The performers are usually accompanied by castanets and guitars, and the movements are expressive of the various stages of the emotions of love.

Boletus is the generic name of some funci of the sub-class Basidiomycetes generally found growing on the ground in woods and meadows, especially in pine woods. Some species, such as *B. edulis*, are catable, but many others are acrid and dangerous.

Boleyn, Anne second wife of Henry VIII., daughter of Sir Thomas B., was appointed maid of honour to Mary, sister of Henry and accom-panied that princess to France in She returned some time after 1514. 1522, and soon became of importance in the Eng. court. Her gaiety and wit won Henry's favour, and her father was honoured. She refused to become the king's mistress, and determined to become queen. The removal of Catharine was thus necessary. Henry in 1524 resolved to break his marriage on the ground that although a papal dispensation for his marriage with his brother's widow had been granted, Heaven had not sanctioned it. However, Clement VII. was in the power of Catharine's nephew, Charles V., and much as he might desire to conciliate, Henry dared not offend Charles. Meanwhile, Anne had been installed in the same palace as with royal honours. Catharine Henry's love letters to her form one of the most curious collections in our literature. Furious at the repeated delays of the papal court, Henry vented his wrath on Wolsey, who

was dismissed in 1529, and on the dayling of Cromwell, appealed to the universities. On Jan. 2, 1533, Henry was secretly married to Anne, and later she was crowned. On Sept. 7, tallow, and bricks. Pop. about 12,500 of Cromwich was born the Princes. at Greenwich, was born the Princess Anne's frivolity soon Elizabeth. began to displease her royal husband. On Jan. 6, 1536, Catharine died, sending a letter of forgiveness to the king. It is said that Anne's heartless reception of the news finally estranged Henry, but it is certain that during the early months of the year there were quarrels. Finally, at a tilting match on May 1, 1536, a harmless act of gallantry by Sir Henry Norris act of galantry by Sir Henry Norms made Henry's anger burst forth. On May 2, she was committed to the Tower; on the 17th, she was tried for adultery by a court of twenty-four peers, under the presidency of her uncle the Duke of Norfolk, and condemned to be burnt or beheaded, according to the king's pleasure. The evidence brought forward has been lost, but it seems probable that her greatest crimes were vivacity, and not bearing an heir to the crown.

Moreover, she was hated by the
Catholics as being a 'spleeny Catholics as being a 'spleeny Lutheran.' She was beheaded on the 19th, Henry ostentatiously wearing white; on the next day he married Jane Seymour.

Boleyn, Sir Thomas (1477-1539),

English statesman, father of Anne B. Fought with his father against Cornish rebels, 1497: 1509 became keeper of the exchange at Calais and of the foreign exchange in England. Jointconstable of Norwich Castle, 1512. B. was employed on a number of diplomatic missions during Henry VIII.'s reign, and held many high offices, doubtless owing largely to his daughter's influence with the king. He went with Poynings on an embassy to the Low Countries; invaded France, 1513. 1517 became sheriff of Kent: 1519-20 on an embassy to Francis I., negotiating the preliminary arrangements for the Field of the Cloth of Gold. 1521 he was one of the commission by which the Duke of Buckingham was condemned; Wolsey's agent in Calais in the autumn. Earl of Wiltshire, 1529; Lord Privy Seal, 1530. Ambassador to Charles V., on the business of Henry's divorce. See Calendar of Henry VIII. (iv.).

Bolgary, a Russian vil. in the prov. of Kazan on the R. Volga. It is built during excavations.

Boli (Gk. πόλις, city), a tn. of Asia Minor in the prov. of Kastamuni on the R. Boli. It manufs. cotton and woollen goods. Pop. about 10,000.

Boilde (Gr. βολίς, a missile), a fireball or meteoric body of greater brilliance and slower motion than the ordinary 'shooting star.' Sec Aero-

LITE, METEOR.

Bolingbroke, Henry St. John, Viscount (1678-1751), was I orn at Battersea. He was educated at Eton, and his youth was notorious even in that hard drinking and riotous period by reason of his orgies. He was a schoolfellow of his great opponent Sir Robert Wal-pole, and was returned to parliament in 1701 for Wooton Basset in Wiltshire. By his eloquence in debate he was soon able to command the attention of the House of Commons, and he attached himself to the Tories, at this time led by Harley. In 1704 he became Secretary for War, in 1708 he retired with Harley, and in 1710 he again came back to office in another of Hayley's mistrice. of Harley's ministries. He was responsible for the treaty which was made secretly with France to end the war of the Spanish Succession, and has often been accused of not having pushed the advantage which Great Britain had to its full extent in the negotiations. In 1712 he was made Viscount B. and Baron St. John. In the meantime a quarrel had taken place between Harley (now Earl of Oxford) and B. which Swift attempted to patch up, but which in spite of all efforts still continued. The whole energies of the two ministers were not concentrated on the events which were to follow the death of Anne, an event which was now expected. Both were pledged by correspondence to the Old Pretender, and B. seems also to have pledged himself to him in secret interviews which had taken place while B. was in France. quarrel with Harley ended in victory for B., and Harley left the ministry. B. was now supreme, and his extreme Tory policy was favoured by the queen, whilst his attitude towards Hanover also found high favour at the court, a Jacobite restoration seemed inevitable when the queen died suddenly, and B. was ruined by the action which led to the appointon the site of the anct. city of Bolgar the action which led to the appoint-or Bulgar, the old cap. of the Bul-ment of the Earl of Shrewsbury to garians, of unknown antiquity, but now consists of less than 200 houses. It still contains ruins of its former known, he was certainly intriguing glory, and coins, implements, and inscriptions have been discovered tions on the accession of George I. It was sacked were noticeable by their extravamay b

Exile, . The Tr

gance. He was, however, immediately dismissed. In 1715 he attempted to defend his ministry against the attacks of the new parliament, and in the same year fled to Paris from the threatened attack on the treaty of Utrecht by Sir R. Walpole. He entered the service of James II. the Old Pretender, but after the failure of the '15 was dismissed. He now attempted to enter into Eng. politics again, but was not pardoned until 1723. By means of bribing the king's mistress, the Duchess of Kendal, he was able to obtain many privileges. and at last seemed to be on the point of obtaining a ministerial appoint-ment when his hopes were again thrown down by the death of George He still continued his attacks on Walpole, and continued his attempts to obtain political power. He was kept out of the House of Lords by Walpole. He retired into private life | Venezuelan independence. The atin 1735, and ct and his intimat leading men of the wrote many | The wro leading men of He wrote many

Patriot man of letters is not so great to-day as it was during his own time. Patriot King was the text-book from Bute attempted to teach George III, the elementary principles of kingship, but altogether B. was a brilliant man who made his mark upon his contemporaries, but had not depth enough to be able to im-He was buried at press posterity.

Battersca. 1:----- pimitrie (1826-72), a vas born near

where for sev.

months he ed. Le Peuple Sourcrain, 1847. In 1848 he was banished for political reasons, and he then spent several years in travelling, returning again to Bucharest, where he died. Among his best known works are Brises d'Orient, 1866, a translation into Fr. by the poet himself, and Calddorid pe Dunare si in Bulgaria, 1858.

Bolitophagus is a genus of coleop-terous insects of the family Tenebrionidæ; they are closely related to e on fungi. but B. agaricola

rgest state Venezuela, bounded on the N. by the Orinoco R., on the E. by the ter. of Yuruari, and on the S. by Brazil. The cap. is Ciudad B., better known as Angostura. Estimates of the pop.

and area vary widely.

Bolivar, a small prov. in Central Ecuador. The cap. is Guaranda.

Bolivar, Simon (1783-1830), Libertador; the hero of S. American independence, was born in the city of Caracas, in Venezuela. He was descended on both sides from noble Venezuelan families. He studied in various European capitals, especially in the law schools of Madrid, and was the witness of the final scenes in the Fr. Revolution in Paris. He married in 1801, and returned to Venezuela, where, however, he did not long remain, the death of his wife very shortly after their marriage resulting in his return to Europe (1804). His visit to the U.S. in 1809 resulted in his joining the party of independence in Venezuela, and he was regarded as an important recruit. being given an important post to defend in 1811 on the declaration of

small force, forced the crossing of the R. Magdalena, and with 500 men pushed on to victory and proclaimed war to the death. His success was only transient, and in 1814 his defeat by Bores, and the success of the royalists generally, forced him again into exile. He went to New Grenada, and from there to Kingston, where an unsuccessful attempt was made on his life. Undaunted by the ill-success of a landing on the mainland in 1816, in the following year he was successful in driving the royalists before him and in reaching and making his head. quarters at Angostura. Here a congress was held in 1819, and afterwards ting France he he joined forces with the republicans of New Grenada, and was entirely successful. He was now generally recognised as the hero of liberation.

> and New Grenada into one republic of Colombia, and was successful in his attacks against the Spaniards, who may be said to have been finally defeated at Carabobo in 1821. In the year the constitution same Colombia was adopted, and B. became the first president. The next year the first president. he added Ecuador to the republic, and was later called to the help of the Peruvians, who were fighting for independence. At the end of two years' hard fighting their independence was you, and in 1825 the upper part of Peru changed its name to Bolivia in his honour. The constitution pre-pared by him for that country, how-

ever, did not prove popular, owing to its arbitrary proposals, and was finally rejected by the Bolivians. He was,

however, again elected president of

He succeeded in uniting Venezuela

general alarm, and the dread of a dictatorship put aside all past services. In 1829 Venezuela separated from Colombia, and in 1830 B., being voted a pension of 3000 dollars, conditional on his residence elsewhere. led to his resignation of his power in Venezuela. His life and his fortune were given practically for the liberation of S. America, and his influence purified financial and judicial methods. His adoption of dictatorial methods was almost justified by his position, and he certainly was successful in creating a new spirit of independence

and liberty in South America.

Bolivia, the third largest political div. of the continent of S. America. It is conterminous with five different states, having Brazil on the N. and E.. Peru and Chile on the W., and Argentina and Paraguay on the S. Its boundaries are purely conventional, following practically none of the physical features of the land, and cannot be altogether accurately stated, since they are continually the subject of dispute. It extends practically from 9° 44′ to 22° 50′ S. lat., and 58·70° W. long. After the war with Chile it became for a time a land-locked country, but obtained in 1895, by considerable territorial concession to Chile, a small scaport and access to the Pacific by means of a small strip of ter. running through anct. Peruvian ter., and which is still in dispute with the Peruvians. It has also secured an outlet to the Atlantic by the R. Parana, a riv. which is also free to all flags. Its area and pop. are still the subject of considerable dispute; the area can, however, be taken as about 567,000 sq. m., and its pop. at roughly a little over 2,000,000. Its pop. may be divided into three fairly well-defined groups—the aborigines, Indians, who number between 200,000 and 300,000; the Mestizos, natives with a slight European strain, who number nearly 1,000,000; and Europeans, who number between 600,000 and 700,000. Naturally, an ill-assorted pop. such as this is liable in times of weak or bad administration to become a standing menace to the gov., and during the frequent disorders in B. they have often been a source of grave danger to the stability of the state.

Physical features.—In B. the Andes approach closely the Brazilian uplands. In the western district there are two main ranges, the Western Cordilleras, which are really now in Chilian ter., and the Cordillera Real, which is the name given to the section of the Andes on the E. side of Titicaca. In this group are found

the Colombian republic, but his the Sorata (23,000 ft.) and the Illidictatorial methods had roused mani (22,500 ft.). A remarkable general alarm, and the dread of a feature of B. is the great table-land lying between the Andes and the Cordillera Real, which has an eleva-tion of over 12,000 ft., and which contains the Lake Titicaca. The lake is about 120 m. long, and has a depth of about 120 fathoms. Although B. is usually taken to be a very mountainous country, in reality at least threefifths of it is made up of low-lying and swampy ter. In the N.E. there is an extensive plain, which is both well watered and well wooded, and is valuable for its supply of timber trees. The prin. rivs. are the Paraguay, the Pilcomayo, and, belonging to the basin of the Amazon, the Mamoré, the Rio Beni, the Guapore, and the Mochupa. The Chiquite dist. forms part of the Yungas Zone, a name applied to the hot eastern slopes of the Cordilleras which merge into the wooded plains of the Amazon. B. lies in the torrid zone, and its climate depends upon the elevation, and not upon the lat. In the mt. heights perpetual winter reigns, some of its heights being absolutely uninhabitable; between an elevation of 11,000-9000 ft. the climate is of the temperate zone; whilst in the Yungas Zone the climate is tropical, producing all tropical fruits and vegetation. The plains are hot and moist, and covered with dense forests. The indigenous flora comprises the palm, the cinchona, the bamboo, mate, and coca. Other productions of B. are balsam, bananas. caoutchouc, vanilla, copal, coffee, cotton, sugar, potatoes, and tobacco. Amongst its indigenous animals may be mentioned the llama, alpaca, vicuña, guanaco, chinchilla, viscacha. All forms of S. American bird life are found here, and an indigenous species of stork called the bata is peculiar to this part of the continent. Minerals and vegetable produce.—B.

is still famous for its silver mines, 1,500,000 pounds weight of silver being exported annually. Other metals which are found in large quantities are tin, copper, and gold; quantities are tin, copper, and gold; lead, mercury, and iron are also found in fair quantities. In the southern provs. salt is found in large quantities, but coal appears to be rare. Amongst the other products of the country may be mentioned wheat, barley, and other cereals, the production of which is, however, retarded as is agriculture generally, by tarded, as is agriculture generally, by the lack of a good system of com-munications. The lower zone is re-markably adapted for the production of maize, cotton, and tobacco, but these industries are not developed. The forest products are cinchona and

rubber.

Communications.—The communischen, and after 1659 by Daniel von cations are in general bad, in some Papenbroeck. parts of the country bridle roads forming the only means of transport. Railways are beginning to be developed, but all real progress in the country is hampered by this deplorable lack of ~~

Constitution. which dates f.

which dates if executive in a president, elected for four years and not eligible for re-election; a senate of eighteen members and sixty-four deputies, who together make up the congress and sixty-four deputies, who together make up the congress and proceed to the process of t and are elected by universal suffrage. The senate is elected for six, the deputies for four years. The state deputies for four years. The state religion is Roman Catholic, but to a very large extent the principle of toleration is accepted. Education is free and supposed to be compulsory, but is in a very backward state. Military service is compulsory, and there is a standing army (national guard) of about 1500 men.

Bolkhov is a Russian city on the Nougra, in the gov. of Orel, and 36 m. Notigra. In the gov. of Orei, and so in.
N, from it. It trades with St. Petersburg and Moscow in manufs, of leather, hosiery, hemp, rope, cattle, etc. Pop. 27,105.

Boll, from M.E. (Sc.) bolle, and the same word as the Eng. 'bowl,' is an analyse with the warmen week for grain.

old Scottish measure, used for grain. etc. It is still in vogue in many parts of Scotland, although it is not re-cognised by law. It is used also in the northern counties of England and in normera counties of England and in the Isle of Man. The B. varies in different places and for different articles. The wheat B. is the equivalent to 4 or 4‡ bushels, and this answers for peas, beans, etc. potato B., however, is from \$\frac{1}{2}\$ to 9 bushels. A B. of flour or meal is supposed to be 140 lbs. avoirdupois. A B of land is about a Scottish acre; a B. of canvas measures 35 yards.

Bollandists, see Bollandus, John van, and Acta Sanctorum.

Bollandus, John van (1596-1665), Dutch Jesuit, has given his name to the Bollandists, a Jesuit association by whom the Acta Sanctorum, a collection of the lives of the saints of the anct. Rom. and Gk. and the modern Rom. calendar, have been pub. B. took up the work at the death of Heribert Rosweyd, of Bois le Duc, who had already conceived the idea and died in 1629. B, settled in Antscope of the work as he amassed fresh scope of the work as he amassed fresh material. In 1613 he issued the two with over 200,000 vols., a museum of vols. for January, and in 1658 the three for February, the work being continued after his death. He was assisted after 1635 by Godfried Hendrich and magnificence. Amongst these assisted after 1635 by Godfried Hendrich and magnificence.

Bollene, a tn. of France, in the dept. of Vaucluse. It is situated 22 m. to the N. of Avignon. Silk-spinning and the manuf. of castor-oil are among its manufactures. Pop. 5693.

Bollington: 1. A vil. in Cheshire,

England. It is situated near the R. Bollin, and has a pop. of 272. 2. A tm. of E. Cheshire, 21 m. N.E. of Macclesfield. It has silk and cotton manufs.,

and a pop. of 5464.

Bollullos par del Condado, a tn. and com. of Spain, situated 20 m. N.E.

of Huelva; pop. about 7000.

Bologna, a fertile prov. of the compartimento of Emilia, Italy. It has an area of about 1390 sq. m., with a pop. of nearly half a million. Its irrigation system is of great value in the cultivation of its rice fields. It raises large numbers of silkworms, rounded by Ferrara, It is sur-Ravenna, Modena, and Florence; its cap, tn. is

Bologna. Bologna, city of Italy, the cap, of the prov. of that name and the archiepiscopal see for Emilia. It is situated on the edge of a fertile plain and at the crossing of two great railways. It lies in lat. 44° 29' N., long. 11° 21' E. It is a rectangular city surrounded by a high brick wall, entered by twelve gates and intersected by the Reno Canal. The newer part of the city is Canal. The newer part of the cap is noted for the magnificence of its colonnades, its well-paved streets, and its fine buildings. In the older part of the city the streets are narrow and dirty, and cannot be compared with the newer portion. Above all things B. is noted for its anet. buildings, these being famous both for their antiquity and for their beauty. city is also noted for the magnificence of the palaces erected by a mediaval nobility, and for the historic scenes that have been enacted within them. Its university, claiming a foundation in the early 5th century, can certainly be regarded as the oldest law school in Europe. Since the 11th century it has been famous as a university, and during the middle ages thousands of students flocked to it from all over Europe. Amongst its numerous famous students may be mentioned the poet Tasso. As a school of medicine it also rapidly became famous, claiming to have been the first medical school that dissected the werp, and associated himself, per-sonally and by correspondence, with Jesuits all over Europe, enlarging the its university it has an academy of human body. Its students now number nearly 2000. In addition to fine arts, a school of music, a library with over 200,000 vols., a museum of antiquity, and a botonic garden. Its

oldest, San Stefano, a group of seven being of the 4th century, the build-ing in present use of the 10th, San Domenico, the resting-place of the saint who died here in 1221; this church contains some of the work of Michael Angelo. The largest church, S. Petronio, was begun in 1290 but never finished, but remains a magnificent example of Gothic architecture. The town has given numerous popes! to the church and an extraordinary number of cardinals, altogether about 200. The present tn. is built on fairly modern lines, and is especially noted for the famous B. sausage, for its tortellini, and for its liqueurs. It manufs, also paper, silks, and musical instruments. Historically it has had a somewhat changeable career. During the early period it was overrun by Lombards, but remained a part of the exarchate of Ravenna. It become a free and independent city in the 12th century. It played an important part in the wars of the Ghibellines and Guelphs, and finally after many vicissitudes passed into the hands of the papacy. During the Napoleonic period it became the chief tn. of Napoleon's Cisalpine the enier th. of Napoleon's Cisalpine republic, and reverted to the papacy by the treaty of Vienna in 1815. Its inhab, were fervid supporters of the cause of United Italy, and in 1860 it became a part of the kingdom of Italy. Pop. 152.000

Bologna, Giovanni (1524-1608), a coultre and architect was keep at

sculptor and architect, was born at Douay, and studied at Rome, after receiving some instruction from his compatriot, Jacques Dubræucq. Rome he received some advice from Michael Angelo, then in the zenith of his fame. He then went to Florence, his lame. He then went to rotate, and in 1558 was attached to the court of the Medicis as sculptor. He married at Bologna, and then took the name by which he is known, G. B., having formerly been known as 'Jean Boulogne.' He is also character, though not free from many Electric oscillations passing through nerisms. Among his numerous works the Lulb increase the resistance of the may be mentioned 'Samson killing wire and thus cause the galvanometer to deflect. Yorkshire: 'Statues of the Rivers Nile, Ganges, and Euphrates:'Nepporture and Four Sirens,' for the public in Central Asia. The anct. kingdom fountain of Bologna: a bronze' Mergury,' at Florence: the 'Rape of the Sabines,' also at Florence.

Bologna Phila a gluss research and the first the letter of the status of the sabines.'

Bologna Stone was originally found phorescence from inorganic matter. When this mineral is heated with charcoal it is reduced to barium

sulphide. Bolometer, an instrument used to measure small differences in temperature and based upon the phenomenon that heat imparted to a metal increases its resistance to electricity. It was invented in 1880 by Samuel P. Langley, an American physicist. sought a more efficient instrument than the thermopile. The B. con-sists of a thin strip of platinum foil blackened with lamp-black and arranged to form one arm of a Wheatstone's bridge, while a strip of similar resistance constitutes the other arm. The blackened strip alone is exposed to the heat rays, and the slightest increase in temperature decreases its conductivity; the equilibrium of the bridge is therefore disturbed, and the extent of such disturbance is indi-cated by the deflection of the con-nected galvanometer. In order to nected galvanometer. In order to attain great delicacy, the platinum strips are made exceedingly small in section, being sometimes all inch wide and 2277 inch thick. With such an instrument the inventor discovered an extension of the infra-red rays of an extension of the intra-red rays of the spectrum which could not be detected by any other instrument. It has also been used to estimate the intensity of the energy of radiant heat. After being exposed to radiation for a measured time the rays are cut off and the increase of current necessary to produce the same increase of temperature noted. The B. has also been employed in wireless telegraph receiving apparatus. as 'Jean Boulogne.' He is also platinum in this case is in the form of known as 'Giam Bologna,' whilst the a loop of fine wire enclosed in an exfr. call him 'Jean de Douai.' His hausted glass bulb after the manner works are elegant and imposing in of an electric incandescent lamp. character, though not free from man- | Electric escillations passing through

Sabines, also at Florence.

Bologna Phial, a glass vessel made of the lake of B. In anct. times it first at Bologna, hence its name. It was a place of very great importance. is narrow and closed at one end, and ! Close to the tn. there are traces of one is used in the manufacture of bottles of the Etruscan cities; the chief of the and such like articles. By means of ruins are those of a temple, and also this phial the exact colour of the mol- an amphitheatre. Other relies of the ten glus or metal can be ascertained. past are to be found, some of which

Martana and Bisentina are two islands which were often visited by Pope Leo X.

Bolsover is a tn. in Derbyshire, England, 6 m. E. from Chesterfield, and situated upon a ridge of the Pennines. There are coal mines in the neighbourhood, also quarries of lime-stone. B. Castle, which is well preserved, is a very anct. structure built in the 11th century.

Bolsover Stone is the name given to the yellow limestone found at Bols-over in Derbyshire. It was selected for its strength, durability, and colour for the construction of the Houses of I

Parliament.

Bolsward is an old tn. of Holland, in Friesland. It is situated at the junction of many canals. It trades in dairy produce and cattle, and is noted for the manuf. of worsted. There are shipbuilding yards, brick yards, and potteries.

Bolswert, Sheltius (b. 1586), Dutch engraver, born at Bolswert, the brother of Bœtius Adam B., lived at Antwerp. His prints after Vandyck and Rubens are particularly faithful reproductions

Vandyck's 'Crucifixion' is one of his

best productions.

Bolt: 1. From an A.-S. and Dan. word signifying knob (cf. bole); a metal or wooden pin with a knob to it, as the B. of a door. In time any stout pin came to bear this name, and we have Bs. of many kinds, used in fastening together structures of wood and metal, as ships, bridges, machinery. The short heavy 'quarrel' of a cross-bow and the 'long-shot' of a cannon were both Bs.; also a roll of textile material, e.g. a boll of cotton sheeting. A bundle of reeds or osiers bears the same name. A prisoner's shackles were thus called, as in Measure for Measure, 'Lay bolts enough upon him.' From the crossbow missile we get the metaphorical idea of something striking suddenly

have been built into modern places. Comes the verb 'to bolt,' meaning to sift out. Burke says, 'This must be bolted to the bran,' i.e. closely reaton. It is 10 m. long and volcanic thealthy, when Vice can bolt her arguments.'

Boltenia is a genus of tunicates found in Australasia, the Arctic, and N. Atlantic. It belongs to the order Ascidiacea and family Cynthiide. The species, which include B. orifera, B. fusiformis, B. reniformis, and B. globifera, remain fixed to rocks and stones by the long stalk of the body, and show little signs of life.

Bolthead, or a receiver or matrass, is a glass vessel used in chemical distillations. It is in shape long, with a

straight neck.

Bolton is a large and important municipal and parl. bor. in S. Lancashire, England. It is situated on the R. Croal, and is 10 m. from Man-chester, and 200 from London. It is a railway centre for the L. and N.W. Railway, also the Lancashire and Yorkshire railways. It is one of the chief manufacturing tns. of England, specially noted for cotton fabrics. Heavy goods-counterpanes, etc .and also finer things, as muslins, calicoes, etc., are made. There are large foundries, iron works. bleaching, dyeing, and chemical works, and paper mills. The coal mines of the neighbourhood are numerous and important. B, is a place full of his-The Flemings introtoric interest. duced the cotton and woollen manuf. in the 14th century. Fr. and Ger. refugees emigrated here, and brought new industries with them. Arkwright lived and worked in B., and Crompton was born here. There are many large public buildings and parks. It possesses three weekly and three evening newspapers. It returns two members to parliament. Pop. 187,824. Bolton, Sir Francis John (1831-87),

Eng. soldier and electrician. He enlisted in the Royal Artillery, obtained a commission as ensign in the Gold Coast Artillery Corps, 1857, served at Crobboe Heights, 1858: 1859 B. was adjutant in the expedition against the Dounquah rebels. On returning to England he became captain of the 12th Foot Regiment, 1860. Colomb he developed a system of and swiftly, as 'a thunder-bolt,' 'a visual signaling, also inventing oxybolt from the blue,' and the noun calcium light for night-signalling suggests a verb, 'to bolt,' meaning to With Colomb and an officer of royal with a large bolt of the suggests a verb, 'to bolt,' meaning to with colomb and an officer of royal 'meaning to a supplied the suggest of the large with the suggest of the suggest suggests a verb, 'to both,' meaning to rush suddenly, as 'the horse bolted,' engineers he compiled the Army and In farming, a crop that runs to seed 'Navy Sequal Book, used in Abysprematurely is said to B. 2. From Old Fr. buleter or bureter (said to be gaged at School of Military Engineer-from bura, a kind of cloth, cf. It. buretto, a meal-sieve) we have bolt, sometimes spelt boult, a frame covered country of the Society of Telegraph Engineers the flour from the bran. From this

the intended to be swallowed in the same Journal: water-examiner to service as honorary colonel; knighted, Boma is the cap. of the Belgian 1884. He designed and controlled the Congo State. It is situated on the r. b coloured fountains and electric lights of the R. Congo, at about 40 m. from at the exhibitions at S. Kensington, its mouth. It was originally named 1883-6. Wrote London Water-supply, Lombi, or Embomma. The harkowing 1884; Description of the Himmington. 1884; Description of the Illuminated Fountain and of the Water Pavilion. See Royal Engineers' Journal, February 1887. Bolton, Sir Richard (c. 1570-1648),

Eng. lawyer, practised as a barrister in England and Ireland. In 1604 became recorder of Dublin; member of the society of King's Inns, Dublin, 1610-3; M.P. for Dublin, 1613; knighted, 1618; 1619 B. was solicitor general for Ireland; 1621 he pub. Statutes of Ireland (from Edward II.) to James L); attorney-general to court of wards, Dublin, 1622; chief baron of Irish exchequer, 1625. In 1638 B. pub. A Justice of the Peoce for Ireland: 1629 hecame chancellor for Ireland; 1639 became chancellor of Ireland. He was one of Strafford's chief advisers over introducing arbi- which are found most commonly in trary gov.; 1640-2 B. was impeached America. The flowers are hermaphro-for high treason, but the impeach- dite, have five joined sepals, five free ment was abandoned, and he resumed petals, five or more stamens either part in preparing a statement as to the English administrative system in Ireland: 1613-4 chief counsellor of Institutes between English and Irish, and especially with the Irish Confederation for peace; 1646 B. signed the proclamation of a treaty of peace; sonia, or the Baobab. Bombala, a tn. of Wellesler co., in Roman Catholic subjects. He joined the extreme S. of New South Wales, and Carnondo's statement to Charles I. Australia, 320 m. S.W. of Sydney;

in Ormonde's statement to Charles I.
of the condition of Ireland, 1646-7.
See Contemporary History of Affairs
in Ireland, 1641-52, 1879; Carte's
Life of Ormonde, 1736; Carte MSS.
Bodleian Library, Oxford.
Bolton Abbey. The picturesque
ruins of this one time important
priory are situated on the banks of
the Wharfe R., in the West Riding of
York-hire, England. It was founded
in 1121 by William de Meschines, for
the order of St. Augustine, about 2 m. the order of St. Augustine, about 2 m. from its present lite. The date of its removal is uncertain, but it was dis--plyed in 1540. A portion of the nave has been used as a parish church, but the tower and a very fine E. window are practically all that is left of the building. The ruins are so hidden in woods that they are not noticed until the visitor is very close. The sur-rounding scenery is most beautiful, The poet Wordsworth has founded his poem The White Doe of Rylstone upon a legend connected with the old abbey.

Bolus, a round mass of substance with medicinal qualities. It is soft

its mouth. It was originally named Lombi, or Embomma. The harbour is formed by the is. of Nkete, and the riv. bank, and is a m. wide. It exports ivory, gum, rubber, nuts, and

palm oil. Bomarsund was at one time a Russian fortress on the is. of Aland. in the Baltic Sea, and commanded the Gulf of Bothnia. It was taken by the Fr. and Eng. on August 16, 1854, who destroyed it after a bombard-ment lasting a week. The Treaty of Paris bound the Russians not to rebuild it.

Bomb, see Anarchism. Explosives. Bomb, in geology, the name applied to a round mass of lava which has been ejected from the crater of a volcano.

Bombaceæ is an order of dicotyledonous plants consisting of large trees his position as chancellor. He took free or joined to form a tube, two to five superior joined carpels, which are multilocular, and contain two or more ovules in each loculus. The Ormande, negotiating for cessation of fruit often contains hairs which form

Bombard is a kind of cannon, introduced before the 15th century, which could throw stone balls from 250-500lbs, weight. They were breech-loaders, thick, and with a wide aperture, sometimes made of wrought-iron bars hooped together. Such a one was ' Mons Meg,' used at the siege of Dumbarton, 1489.

Bombardier is the name of the lowest grade of non-commissioned officers in the Royal Artillery, corresponding to corporals in the line regiments: an acting B. corresponds to a lance-corporal. The number of Bs. in a battery is nine. The name owes its origin to the bombard,' a piece of ordnance used in the bombardment of fortified places; a man employed in looking after 'bombards,' howit-zers,' 'mortars,' etc., was known as a bombardier.

Bombardier Beetle is the popular name of sev. species of coleopterous insects of the family Carabidæ. They obtain their name from the fact that they can emit explosively from their and larger than a pill, though it is bodies, when alarmed a pungent acrid and the fluid instantly evaporates. Brachinus crepitans is the commonest British species and occurs in chalky districts.

Bombardment, an attack upon a fort. tn., fortress, etc., by means of continuous artillery fire. A real B., however, consists in the continual attack on the buildings and unde-fended portions of a tn. in order to harass and attack the civil pop., and so bring pressure to bear upon the governor or commandant of the tn. to induce him to surrender. AB. used in order to produce psychological pressure on the inhab. has, however, been condemned as immoral. The Hague Conventional Law of War (1907) lays down the following articles in connection with B .: - Art. 25. The attack or B., by whatever means, of this, vils., dwellings, or buildings, which are undefended, is prohibited. Art. 26. The officer in command of the attacking force must, before commencing a B., except in cases of assault, do all in his power to warn the authorities. Art. 27. In sieges and Bs. all necessary steps must be taken to spare, as far as possible, buildings dedicated to pitals, and places where the sick and wounded are collected, provided they are not being used at the time for military purposes. It is the duty of the besieged to indicate the presence of such buildings or places by distinctive signs, which shall be notified to the enemy beforehand. Art. 28. The pillage of a town or place even when taken by assault is prohibited. An open tn, is liable to be bombarded An open tn. is liable to be bombarded if it is in any way defended, or if the exigencies of military necessity demand it, i.e. if it can in any way be used by the enemy as a point of yantage. The main reason for a B. has already been given as a means of inducing the civil pop. to bring inducing the bear which will lead to the ultimate surrender of the tn., but this has been proved to be not always successful. The case of the siege of and of a case in ery much

properly d in addithe guns

which are employed. The B. of a fort. tn. does not of a necessity mean only the B. of the fortifications. The commandant of a bombarding force has the right to range his guns over the whole of the city, saving always those buildings which are mentioned in Art. 27. Notable Bs. have taken place at Schastopol, Strasburg, Paris, Scissons, and Verdun. Strasburg

A report follows the discharge, may be taken as an example of a tn. that underwent a terrific B., as the tn. was bombarded continually day and night. Later, when siege operations began, the fortifications were shelled all day, and the town itself all night. When the surrender took place nearly 800 houses had been destroyed, considerably more than half of the total number of houses were injured more or less severely, 2000 of the civil inhab. killed, and over 10,000 made home-less More differences of which the civil services when the contract of the civil services when the contract of the civil services when the contract of the civil services when the civil ser less. Many differences of opinion have been expressed with regard to Art. 26, some authorities holding that B. should not begin until ample warning had been given the inhab., others that a besieged or threatened tn. should be prepared for B. at any time without notice. Another point which has led to much discussion is as to whether non-combatants should be allowed egress from a tn. about to be bom-barded or not. One opinion expressed, which, however, does not find general acceptance, is that by the B. of a number of non-combatants public opinion is roused against the war, which hence comes to an end more rapidly than it would otherwise, and thus the end justifies the means. As religion, art, science, or charitable has been already stated, however, purposes, historic monuments, hospitals, and places where the sick and pressure has been condemned as immoral.

Bombax, the typical genus of Bombacere growing in tropical countries. It consists of large trees with a soft spongy wood frequently used for making canoes. B. Ceiba, common silk-cotton tree, a native of W. Indies and S. America, reaches a height of 100 ft. The down in the seed-vessel is made into hats and bonnets, and is used for stuffing chairs and pillows. B. malabaricum, the cotton-tree of Ceylon and India, sheds its leaves in December and flowers during the months it is leafless. B. pubescens attains a height of 20 to 30 ft., and in Brazil its tough bark is used in rope-

making. Bombay (presidency). The most westerly and smallest of our Indian presidencies, and stretching from Baluchistan to Mysore, consists tο Baluchistan partly of British dists, and partly of native states under the administra-tion of a governor. The prov., includ-ing Aden and Sind, comprises twentyfour British dists and nineteen native states, and has an area of 197,887 sq. m., of which 73,753 sq. m. are in native states. The total pop. (1901) is 25,486,209, of which 18,515,587 are in British ter., and 6,908,648 in native states. The prov. is divided into four commissionerships and twenty-six districts. The four divs. are (1) the Strasburg northern or Gujurat, (2) the central or

Deccan, (3) the southern or Carnatic, and (4) Sind. The native states are under the supervision of the Governor of Bombay, and are divided historically and geographically into two parts.
(1) The northern or Guiurat group includes Baroda and other adminismendes Baroda and other administrative divisions of Cutch, Palanpur, Kewa Kantha, and Mali Kantha. (2) The southern or Mahratta group includes Kolhapur, Akalkat, Sawantwara, and the Satara and Mahratta Jagirs. The surface of the prov. is very rugged on the whole. The great plateau of the Deccan stretches southward from the Vindhyas, and is buttressed by the western and eastern Ghats. The chief mt. ranges are the Ghuts. The chief mt. ranges are the Western Ghats, stretching all along the coast-line, the Vindhya Mts. in the N.E., and S. of these the Satpura Hills. The N.W. portion is flat. The chief rivers are the Tapti and Nerbudda, flowing into the Gulf of Cambay, the Luni flowing into the Gulf of Cutch, and Sind is watered by the Indus. The southern portion of B. is watered by the tribs. of the Kistna watered by the tribs. of the Kistna and Godaveri. The climate is remarkable for its great varieties. extreme dryness and heat Upper Sind resembles the sultry deserts of Africa. In Cutch and Gujurat the heat, though less, is very great. The table-land of the Deccan has on the whole an agreeable climate, except in the hot month. The same applies to the Mahratta country. B. Is., though cooled by the sea-breezes, is oppressively hot in May and October.

Agriculture.—Joar and bajra are the staple food-grains in the Decean and in Khandesh. Wheat is also largely grown throughout the presidency, and especially in Sind and Gujurat. Barley is also grown. The prin cilescole artill wasterly and the state of the sta

in B. City, Ahmedabad, and Khandesh. The industry is centred in B. City and Is. Ahmedabad and Suratare famous for carved woodwork. Salt is largely obtained from the gov. works at Karaghoda and Udu in Ahmedabad. B competes largely with Manchester in the Indian mrkts., and exports its own manufs, to a large extent. Other great staples are opium, wheat, and oil-seeds.

Education.—A university was estab. in 1857, consisting of a chancellor and vice-chancellor and fellows. The total number of educational institutions in 1905 was 10,191, with a little more than 500,000 pupils. The educational dept is under a director of public instruction, who is responsible for the

administration.

Languages.—In the S. are the Marathi and Canarese, Gujurati in the N.W., Sindi in Sind, and Baluchi W. of the Indus. The prin. castes are (1) Parsees, descendants of ancient Persian fire-worshippers, and (2) the Borahs (sprung from early converts to Islam). Both are remarkable for their commercial activity and enterprise.

Administration.—Gov. of B. is administered by a governor, a council consisting of the governor as president and two ordinary members. governor is appointed from England. the council by the crown, and selected from Indian civil servants. For making laws there is a legislative council consisting of the governor and his executive council with certain other persons not less than eight or more than twenty. Administration of justice is conducted by a High Court at B., consisting of the chief justice and seven puisne judges. together with dist. and assistant judges throughout

the dists. of the presidency.

Bombay, the cap. of the presidency, stands on a small is, which is connected with the mainland by an artificial causeway. It is the largest and safest harbour in India, and one of the great scaports of the world. It. occupies the best position for commerce in the whole of Asia, and since the opening of the Sucz Canal it has been rapidly surpassing Calcutta in its trade. It was the American war of 1861-65 that made the fortune of B., for it then became the chief cotton mart of the globe. Its streets are thronged with people of every race, tongue, and colour. The name is a contraction of Bom Bahia, the Portuguese for 'Good Bay.' The first railsidency, and especially in Sind and guese for Good Bay. The first rail-guigata. Barley is also grown. The way in India was opened at B. in prin. oil-seeds are til, mustard, castor- 1853. Poonah, which stands on a oil, safflower, and linseed, and the chief table-land E. of B., is the military fibres are Decean hemp and cotton centre. During the mutiny of 1857. Industries.—The prin. manuf. is the local army on the whole remained cotton. Steam mills have been erected loyal. Pop. 860,000. In B. City, Ahmedabad, and Khap-desh. The industry is control in B. Gity, Steam and Steam and

guese in 1509, and acquired by them in 1530. It was given to Charles II. as the marriage portion of the Infanta Catherine of Portugal, 1662. In 1668 it was granted to the E. India Company, who had long desired it. Confirmed by William III. in 1689.

Bombay Duck, or Harpodon nehereus, is a marine, pike-like fish of the family Scopelidie. It is captured in the Indian and China Seas and exported from Bombay in a preserved state.

Bombazine is a material of which the warp is silk and the weft wool. though there is an inferior quality made of wool and cotton. The stuff is of fine texture, and is used in making the robes of some religious orders.

England by the Dutch.
Bombelli, Raffaello, Italian mathematician of the 16th century, born at Bologna, and patronised by a bishop of Melfi. His main work is a Treatise on Algebra, 1572, in three books, the last being a set of problems. A history of algebra is prefixed to the works. in which the invention of the science is attributed to the Hindoos.

Bombetoka Bay, a bay in the W.

of Madagascar.

Bombic Acid. sec Str.k.

Bombus is the generic name for the social bees which are popularly known as humble-bees. They belong to the family Apidre of the order Hymenoptera, and form the largest of British species. The provailing colours are yellow, red, and black. See BEES.

Bombycidæ is a family of lepidonterous insects composed of small, dull moths with rudimentary maxille, small palpi, no proboseis, and no frenulum. Bombyx mori is the true frenulum. Bon silkworm (q.v.).

Bombyeilla is a term which was formerly applied to some species of birds in the family Ampelidæ which are known as wax-wings. B. garrulus is the Ampelis garrulus of Linnæus.

Bombyliidæ, a family of dipterous insects distinguished chiefly by the long proboscis. The body is short, stout, and very hairy, and the legs are long, slender, and weak. The species are bee-like in appearance, and are remarkable for their great swiftness in flight, during which they emit a humming sound. Bombylius major and B. medius inhabit British woods and feed on nectar.

Bombyx, see Silk.

Bommel is a tn. in Holland belonging to the Gelderland prov., situated on the l. b. of the Waal, 7 m. S.W. of Thiel. The Bommelerwaard, a fertile is.. is formed by the Maas and Waal. Bommelo, an is. on the W. coast of Norway, situated in lat. 59° 40' N., and long. 5° 20' E.

Bommelwaard, an is. of the prov. of Gelderland in the Netherlands, formed by the Waal and the Maas. and containing the castle-fortress of Loevenstein. There are many small vils. on the is., as the soil is fertile. of Cape

Bomvanaland, a dist. Colony in South Africa.

Bon, Cape, the most northerly point of the coast of N. Africa. It is on the Mediterranean Sea, 58 m. N.E. of Tunis.

Bona is a scaport tn. of Algeria, belonging to the prov. of Constantine. It is situated at the base of a hill and built round by ramparts. Not much of the old tn. remains, but the new tn. is a prosperous Fr. city, in direct telegraph communication with Mar-

Its manuf, was first introduced into seilles. Valuable marble quarries are near, and cork woods in the vicinity while a little farther off there are iron and copper mines. The manufs. are leather and tapestry. The exports are marble, iron, copper, lead, zinc, The exports cork. tannin, and esparto, Pop. 42,934.

Bonacci. Leonardo, sce LEONARDO

OF PISA.

Bona Dea (' the good goddess '), a Rom, goddess of fertility. She has been identified with Fauna. She mas the goddess of fruitfulness, both in the earth and in women. Her cult was the cult of women only, and even her name was concealed from From the earliest period of Roman history we have references to her worship. During the year 62 B.c. the solemnities of her festival (May 1) were performed in the house of Casar. The ceremonies attached to this festival were carried out exclusively by vestal virgins of high rank. All males were excluded, but on this occasion P. Clodius, disguised as a female musician, was found in the midst of the ceremony. His profana-tion of the mysteries of B. D. led to

was a serpent.

Bona Fides, a Lat. expression (from Lat. bona, good, fides, faith) meaning good faith. It is largely used in law. and implies a fair and just agreement with an absence of any fraudulent or unfair acting. It is used adjectively in the form 'bona fide,' and is then used in conjunction with a noun, as 'bona fide traveller,' bona fide parchaser.' A 'bona fide traveller,' according to law, is one who, to entitle himself to obtain refreshments at a tavern at certain prohibited times, proves to the satisfaction of the host that he, in all good faith, has journeyed from a distance that day. The term B.F. is used largely in Scotland in legal matters. According to Scottish custom, a person who buys property upon a title which he really believes to be good, although it may be bad, is protected against the consequences of this illegal position, and is entitled to retain the profits or fruits which he has reaped during his 'hona fide' occupancy.

'bona fide' occupancy.
Bonai, the most southerly of the trib. states of Chuta-Nagpoor, Bengal. It has large timber tracks Its area is 1297 sq. m., and its pop. 24,832.
Bonaire Island, otherwise known as Buen Aire Is., is the most easterly of the Dutch West Indian Is., situated off the N. of Venezuela, in lat. 12° 2′ N. and long. 68° 22′ W. Pop. 500.
Bonald, Louis Gabriel Ambroise, Vicomte de (1751-1840), a Fr. philoso-

pher and politician, was born in October at Le Monna, near Millau. Being opposed to the principles of the Revolution, he emigrated, and after of the Prince de Condé, he settled down at Heidelberg. During this period he wrote one of his most famous treatises from the ultra-Conscreative point of view. He pub. this in 1796, under the title Théorie du pouvoir politique et religieux, and in it he prophesied the return of the Bourbons. On his return to France, he was forced to live in retirement for some time, but afterwards took part in the political life of the country, becoming first Councillor of the Imperial University. After the Restora-tion he became a prominent man in the affairs of state, and advocated the strongest Conservative measures, attacking all reform, and even advocating the restriction of the liberty of the press. In 1822 he became a minister, and in the following year was raised to the peerage. After the revolution of 1830 he retired from politics, and on his refusal to take the necessary oaths his peerage was taken He died in November at from him. his residence at Le Monna. He was one of the leading philosophers of the day, and based his philosophy largely on the principle of the divine origin of language. He was noted also for the purity and ornateness of his style, and for the vigour and sincerity of his utterances. Amongst the more prominent of his works are the following: Législation Primitive, 1802; Recherches Philosophiques, 1818. He had four sons, of these Louis Jacques Maurice became a cardinal of the church, 19 17. -heir, was

his works to prevent confusion arising from courts) grants probate or letters of administration. The value necessary to constitute property B. N. was fixed by a canon of 1603 at £5.

Bonanza is a Spanish word signifying 'fine weather at sea,' or 'success.' The term is used in the mining dists. of various countries, for a mine that yields a rich mass of ore. It was used as the name of some particular silver mines in Nevada, which for sev. years

Bonanza Greek, Yukon, Canada, a valley with rich gold deposits, opening into the Klondyke near Dawson. The name is of Spanish derivation.

Bonaparte, Napoleon, see NAPO-LEON I.

Bonaparte, the family name made famous by Napoleon I. In its original It. form it was Buonaparte, and in this form was retained by the whole family up to the year 1796. family were descended from an anct. It. family who are heard of as early as the 12th century, and who seem to have settled in Corsica during some part of the 16th century. Here the family remained until after the occupation of Corsica by the English in 1793. Charles Bonaparte, the father of the famous emperor, was born in 1746, and educated in law at Pisa under the care of and at the charge of, his uncles. He seems to have been a man of somewhat rash and unsteady character, and by his early speculations endangered the fortunes of the family for some considerable time. In 1767 he married Letizia Romolina, beautiful girl descended from an anct. Corsican family. Charles B. held sev. offices under the Crown of France in Corsica, and seems to have been naturally a schemer, for certainly it was he who pointed out that the means of a successful career were to be found for his sons not in Corsica but in France. He obtained for his second son, the great Napoleon, a place in the military school at Brienne during the period that he was resident in France as part of a deputation of Corsican nobles. In 1779 he returned to Corsica, and six years later he died at Montpelier whither he had gone for His wife, Letizia, surhis health. vived him for some considerable period, and saw the rise and fall of Bona Notabilia, a legal phrase designating goods of sufficient value to be accounted for. Where a man of the family during the days of its dies leaving goods of a sufficient adversity, and when Napoleon leapt amount in different dioceses, in order rewarded with the title Madame Mére double administration, the metro- and was given a considerable housepolitan of the prov. (in pursuance hold. She was, however, never at ease of the jurisdiction over wills which in it, and was always expecting the anciently belonged to the eccles downfall of the family, so that when the fall came it did not greatly surprise her, nor was she unprepared for it. She spent the great part of her life after 1811 in Rome with her step-brother, and died in 1836, leaving a considerable fortune, which she had taken care to save during the days of the splendour of Napoleon.

Joseph Bonaparte (1768-1844) was born in January. He was educated in France, but returned to Corsica at an yielded great quantities of metal, early age and later studied law at The term 'in B.' is now employed for Pisa. He was with the rest of the any successful business enterprise. family on the democratic side as

opposed to the party of Paolo, and of the Duke of Reichstadt (Napoleon left Corsica when the Paolists were II.) recognised by the European victorious. He spent some time powers, but failed. He afterwards immediately after this in Paris, but shortly afterwards seems to have settled in Marseilles, where he married a certain Mdlle. Julie Clary. He was continually making efforts and taking part in plans for the re-covery of Corsica. In 1736 he took part with his brother in the Italian campaign, and in the following year was appointed minister at Rome, where acting on orders he did his best to stir up a revolutionary spirit. On the outbreak of the movement which led to the foundation of the Roman republic he left Rome and returned to Paris. Here he became a member of the Council of the Five Hundred, representing Corsica, but he does not appear to have distinguished himself in any way at all. He retired from this position in 1799, but during the years which followed he was of great service to the state. He helped to negotiate a treaty with the U.S.A. and was one of the representatives of France at the negotiations which led up to the treaty of Amiens in 1802. He was all this while a member of the ministry and helped also in the negotiations for the Concordat. He when Napoleon was made First to enter the Council of the Five Consul for life, and this quarrel Hundred. In this attempt he was deepened in 1804 when the was proclaimed. In 1805, dur. absence of Napoleon beautiful. absence of Napoleon, he acted

of the Fr. army, and in the following year he was proclaimed King of Naples. Here he was faced with enormous difficulties, bankruptey, a corrupt nobility, and a feudal state. He did his best to act as a constitutional monarch, and drew down on his head the wrath of his greater brother for his leniency. In 1808 he was proclaimed King of Spain, but his title was purely nominal, and although he remained in Spain until 1813, he was continually being harassed both by the Eng. and by Napoleon himself. He offered to being abdicate on many occasions, and athough he was prepared to act as a constitutional monarch in Spain, his brother's treatment of Ferdinand VII had done away with all hopes of his general acceptance. On the surrender of Paris in 1814 he immediately retired and played but a small part rearred and played out a small part in the carpaign of the Hundred Days. He did his best to further the plans for the escape of his brother, and then retired to America where he settled on the banks of the Delaware. In 1830 he attended to get the claims

revisited Europe and settled down in Florence, where in 1844 he died. He left no issue. He was a man of great parts, but wholly unfitted for the role which he had been called on to play,

Lucien Bonaparte, Prince of Canino, was born in Corsica in 1775. He was intended for the church, for with that end in view was sent to the seminary at Aix, but his natural disposition did not easily reconcile itself to the church nor to the contemplative life, and on the outbreak of the Revolution in 1789 he threw himself heart soul into the revolutionary He became a Jacobin. movement. and was continually urging his brothers to make plans against the Paolists in the island of Corsica. He retired to Toulon when the Paolist movement took place, and was later joined here by other members of his family. He seems to have put an end to all his hopes for some time by marrying without the consent of his family, and also when a minor. 1794 he was for a short time imprisoned because of his too revolutionary ideas, but was released owing to the influence of Napoleon. In 1797

head of the gov. In the same year was able to give considerable aid to he proceeded to Naples at the head Napoleon when Napoleon overthrew the council on the 18th Brumaire He was, how

crat, and vi suspicion the to gain for

dictator. During one me years similaritervened between the overthrow of the council and the assumption of the imperial crown by Napoleon. affairs were very strained between the two brothers. After 1804 he became for a short time one of Napoleon's ministers, but owing to personal differences with his brother was forced to retire and was given the position of minister at the Spanish court. Here he appears to have still further annoyed his brother by the policy which he carried out there. The partition of Lisbon planned by Napoleon failed principally because Lucien refused to give his wholes upport to his brother's plan. He resigned his position in Madrid and returned to France, where he opposed the policy of his brother. He gave further offence in 1803 by

to Italy. In 1807 he was offered the pied chiefly his later years, are unkingdoms of Naples and Spain on important. His sons were: Napoleon condition that he renounced his wife. Charles (d. 1807), Napoleon Louis This he refused to do. He took the (d. 1831), and Charles Louis Napoleon papal title of Prince of Canino. He (Napoleon III., d. 1873). papal title of Prince of Canino. papal title of Frince of Commissions attempted to reach America, but was captured by the Eng. and brought back to England, where he remained the commission of the commission until 1814. During the Hundred Days he offered help to Napoleon, and seems to have been the only member of the family who remained cool under the stress of the period. After 1815 he spent the remainder of his life in Italy, dying in June 1840. He left issue, four sons and six daughters. He was to a very great extent the fire-brand of the family.

Louis Bonaparte (1778-1846) was born in Corsica in September. His famous brother Napoleon supervised the greater part of his education, and, indeed, seems to have made considerable sacrifices for him. He acted as aide-de-camp for Napoleon during the It. campaign, having received a military education at Brienne, and was again with Napoleon during the Egyption campaign. He was married in 1802 to Napoleon's stepdaughter, beautiful and accomplished Hortense Beauharnais, a marriage which was very unhappy He received still further advancements at the hands of his brother, becoming successively a general and governor of Paris. In 1806, in pursuance of his general policy, Napoleon made him King of Holland. From the very out-set his policy seems to have displeased Napoleon, and his attempts to become popular and to govern liberally added to this displeasure. His failure to prevent a huge smuggling trade from going on with England, and the increasing rigour of the continental system, led to a violent quarrel between the two brothers. In 1808 he was offered the crown of Spain but he refused it, and Joseph. By 1809, Napoleon had resolved that his control of Holland should become real, and in 1810 Louis field the country and went into exile in Bohemia, his kingdom being actually annexed by Napoleon. For the rest of his life after 1815 Louis lived chiefly at Rome, where he took a great pleasure in literary and philosophic studies. The career of his sons was also one of his chief concerns, and he was delighted by the part which they played in the revolution of 1830 in Italy. This pleasure was clouded, however, by the death of his clouded, however, by the death of hi

name of Bonaparte. He was therefore disappointment to him. He died in ordered to leave Fr. ter. and retired 1846. His literary works, which occu-

Jerome Bonaparte, youngest brother of Napoleon, born in Corsica in Nov. 1784, was educated in the college at Juilly, and took part in the family fortunes during the Revolutionary period. He served in the navy as a licutenant, and on the outbreak of war with England in 1803 he was cruising off the W. Indies. He travelled through the U.S., and here, although a minor, he married a Miss Patterson, the daughter of a Balti-more merchant. His marriage was very displeasing to Napoleon, who forbade her entrance into any of the French states, and later declared the marriage void, although it was legal in America and was never declared void by the pope. He again took part in the expedition of the navy, and on his return in 1806 was made a prince of France. He took part in the Ger. campaign of 1806, and was by the treaty of Tilsit (1807) made King of Westphalia. He was an exceedingly extravagant and licentious ruler, and was frequently rebuked by Napoleon for his excesses. Ultimately he was for his excesses. Ultimately he was practically placed under the control of one of the Fr. marshals. After the downfall of Fr. power in Germany he retired to France, and afterwards to Switzerland. In 1815 he helped Napoleon at the Battle of Waterloo, commanding a part of the Fr. left wing and showing great valour in his wing, and showing great valour in his attack on Hougomont. After 1815 he lived principally in Italy and Switzer-land until 1848, when on the accession of his nephew, Louis Napoleon III., he came back to France and occupied some high state positions until in June 1860 he died.

Marianne Elise Bonaparte (1777-1820) was born in Corsica in January.

She was educated at St. Cyr, but shortly after the outbreak of the Revolution returned to Corsica. In 1797 she married Felix Bacciochi, a wealthy Corsican. She was, however, ambitious, and Napoleon gave her the principality of Lucca. In 1808 she received the grand duchy of Tus-cany, and was an irrad duchy of Tuscany, and was an important influence in It. politics. Her relations with Napoleon were frequently strained. After 1815 she retired first to Italy and then to Austria, where she died near Trieste in 1820.

Borghese, and went to live in Rome. She soon, however, returned to Paris, where the manner of her life caused After the death of the Prince Imperial great scandal. In 1806 she was made he became the head of the Imperialists. a duchess. Elba with her mother. She seems to have been devoted to her brother Napoleon, and even offered to share

He was, however, in this position not the was, downer, and was deposed in have been devoted to her brother it. at Rome 1891.

Louis (1856). in his exile. She died in 1825.

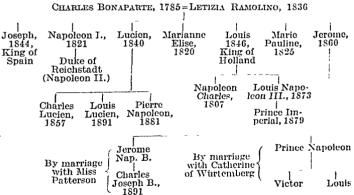
Of the other descendants of the Napoleonic family the more important are:—The three sons of Lucien, Charles Lucien, Louis Lucien, and Pierre Napoleon. The former took England, where they settled down at the control of the Prance of the Empress Eugenic, to Pierre Napoleon. practically no place in politics, but estab. himself as a scientist. The second, after playing at politics during the regime of his cousin, after 1848 estab. some considerable claim to fame as a philologist; whilst the third, who spent the greater part of his life in political work of some description. led an otherwise licentious life, and died in 1881, practically unknown. He left two children.

Napoleon Joseph Charles Paul, the second son of Jerome, King of Westphalia. Took an active part in the restored empire of 1848. He seems

In 1814 she retired to He was, however, in this position not

Louis (1856-of Napoleon III. Chislehurst. He was recognised as Napoleon IV. by the Imperialists on the death of his father. He volunteered for service with the English during the Zulu campaign, and was killed during that campaign on June

The American line, the descendants of the marriage of Jerome and Miss Pattersen, have had at least one distinguished descendant in the person of Charles Joseph Bonaparte, grand-son of Jerome, King of Westphalia, who has filled many public offices in America, and has been secretary for to have accepted the ideas of a liberal the navy and attorney-general.



He was born in Dec. in Edinburgh, and was educated at the High School and the University of that tn. began his work as a minister at Leith, and from there he passed on to Kelso, where he remained until 1866. At the Disruption in 1843 he had become the minister of the Free Church of Kelso. and from here he passed on to the Chalmers' Memorial Church in Edinburgh. He was made D.D. in 1853 by the university of Aberdeen, and in 1883 he was moderator of the General Assembly. He died on the last day of July. He was the writer of many

Bonar, Horatius (1808-89), a cele-hymns, and of a number of articles in hrated Scottish Presbyterian divine. Various religious papers. He cd. the various religious papers. He ed. the Presbyterian Review and other papers. Among the more noted of his hymns may be mentioned, 'Go, labour on,' I heard the voice of Jesus say,' and When the weary seeking rest.

Bonasa, a genus of grouse which belongs to the family Phasianide. B. umbellus is the ruffed grouse of N. America, which is characterised by the absence of feathers on the toes and lower part of the legs, the long rounded tail, crested head, and the ruff on its puck. P. cultostaic the ruff on its neck. B. sylvestris is the hazel grouse.

Bonasoni, Giulio (c. 1540 - 72), an

species of bison (q.v.).

Bonaventura, St. (1221-74), a famous Franciscan theologian, born at Bagnorea in Tuscany. His real name was John of Troanza. He was destined for the church from his youth, and in 1243 he entered the Franciscan order. He studied at Paris, with another firm. The Bs. of a where in 1253 he became a teacher, limited company are debentures, to succeeding his own master, John of be repayed at a fixed period, or from Rochelle. In 1255 he became a a sinking fund. Other Bs. are bot-doctor, and in the following year tomry Bs.' for sums advanced for the doctor, and in the following year tomry is: for sums advanced for the he was selected general of his order. Continuance of a voyage, secured on On the death of Clement IV. it was the ship, to be repaid on safe arrival. his influence which patched up the Bs. given by holders of confidenquarrel of the cardinals and led to tal posts are generally known as the election of Gregory X., who rewarded him with the red hat of a cardinal and the bishopric of Albano.

[88], Eng. librarian, was born at Handra and the bishopric of Albano. cardinal and the bishopric of Albano. The same pope insisted upon his attendance at the Council of Lyons, where he died a martyr to his own asceticism. He was popularly some asceticism. He was popularly some asceticism. asceticism. He was popularly regarded as a saint before his death, but was formally canonised by Sixtus IV. in 1482, and ranked as sixth amongst the doctors of the church by Sixtus V. in 1587. Dante places him amongst the saints in his Paradiso. His works were devoted to a very great extent to the defence and praise of his order, but as a philosopher his doctrines are in marked contrast to those of Thomas Aquinasand Roger Bacon. The purely intellectual was never to him in as high a plane as the power of the affections and the heart. He condemns very severely the Aristotelian doc-trine of the eternity of the world. The trine of the eternity of the world. The warmth of his style and his great K.C.M.G., LL.D. (b. 1857). He was religious fervour gained for him the title of Doctor Scraphicus. Amongst his chief works may be mentioned linerarium Mentis ad Deum. Brevithe legislature in 1882, and two years loquium, De Reductione Artium ad Theologiam, and De Septem Utiveribus House of Assembly. In 1889 he before the control of the tripe of tripe of the tripe of tripe of the tripe of tripe Acternitatis. Amongst the eds. of his works are: Rome, 1588-96; Lyons, 1668; Venice, 1751; Rome, 1882-92.
Bona Vista is the name of a tn., a

bay, and a cape in Newfoundland.
The tn. is one of the oldest on the is. and is also a port. Its pop. is 3500. The cape is on the E. coast, and has an alt. of 150 ft., upon which is a lighthouse with a revolving light. The bay is 30 miles wide.

Bond, in law, a deed, i.e. a document under seal, by which one party, the 'obligor,' binds himself to per-

Italian painter and engraver, born at act, under a penalty if he fail, to be Bologna; studied under Sabbatini. paid to the other party, the 'obligee;' His reproductive work, which was the B. to be void on the performance done almost entirely with the graver, of the act or the payment of the includes prints after Michael Angelo, penalty. If the B. is for the payment Raphael Titian Girlis Pomens and of Taxon the Payment Raphael Titian Girlis Pomens and of Taxon the Payment Raphael Titian Girlis Pomens and of Taxon the Payment Raphael Titian Girlis Pomens and of Taxon the Payment Raphael Titian Girlis Pomens and of Taxon the Payment Raphael Titian Girlis Pomens and of Taxon the Payment Raphael Titian Raphael Raphae Raphael, Titian, Giulio Romano, and of money, the condition in the B. Parmegiano. His original paintings usually is that the B. shall become Parmegiano. His original pannongs were mainly for churches, one of the best being on the subject of purgatory. a smaller sum, generally one half of Bonasus, the name of the European the sum named in the B., together with interest. A B. runs for twenty with interest. A B. runs for twenty years, and action on the B. is barred after that period. If the B. is for the refraining from doing a specific act, the payment of the penalty alone will not be sufficient, the obligor must not continue in the act, c.g. of service with another firm. The Bs. of a

> Office. Six years later he became an assistant librarian of the MSS. dept. of the British Museum. Here he attracted the favourable notice of his chief, and received rapid promotion. In 1867 he became keeper of the MSS., and cleven years later he became prin. librarian. To him are due a

> number of the reforms and improved

efficiency of sev. depts. in the British Museum. He ed. 4 vols. of facsimiles

of A.S. charters, and also published The Speeches of the Trial of Warren Hastings. He was knighted on Jan. 1, 1898, and died on the following day. Bond. The Rt. Hon. Sir Robert, P.C., came Colonial Secretary, and in 1890 he was appointed a delegate to the British government on the question of the French treaties. In the same year he assisted Lord Pauncefote in his negotiations with the U.S.A. for a reciprocity treaty, and was largely responsible for the completion of the Bond-Blaine Convention. He was

sent as a delegate by the government to Halifax, on the N. American fisheries question, in 1892, and in 1895 to the Ottawa Conference, as chairman of the delegation. In 1900

form or refrain from performing some he was appointed premier, and in

1902 completed the Hay-Bond Treaty the Gambia. It is hilly in the centre with the U.S.A. He has received and S., but generally fertile, having many public and municipal honours.

Bond; William Cranch (1789-1859), a celebrated astronomer of America. He was born at Portland, Maine, in September and became a watchmaker. He erected a private observatory, and was one of the exploring party who went to the South Seas with an American expedition in 1838. On his return he was made the director of the observatory at Harvard University, and whilst holding that position he discovered a satellite of

Neptune and an eighth satellite of Saturn. He died in January.
Bondager System, The, which exists on the borderland between England and Scotland, arose out of the difficulty of the interest of the second s culty of obtaining field labour among a rural population. The word 'bon-dager' is applied to the woman who undertakes the tenancy of a farmhand's cot-house, on condition that he gives her regular field work. The ' bondager' is often a member of the

labourer's family.

Bonde (Old Norse buandi, inhabitant) is a term meaning a member of the peasant class. This class used to

Bonded Warehouse is a store approved by the revenue or custom authorities in which goods that have been imported and are subject to duty are stored until the bonder withdraws them for exportation or pays the duty. Previous to the establishment of these places in England, the payment of the duties had to be settled immediately on importation. This system had many serious drawbacks, and one of the chief was that the prices of goods were raised in order that the large duties could be paid. In 1733 the first move was made towards the B.W. scheme by Sir Robert Walpole, but it was in 1803 when the system was finally adopted. adopted.

Bondeno, a tn. of Italy, situated to the W.N.W. of Ferrara, from which it is 11 m. distant. Pop. 13,544.

Bondi, Clemente (1742-1821), an It.

poet who was born in Mezzano. He was educated by the Jesuits, and at an early age became a lecturer at the Royal Conventat Parma. Heoffended the Jesuits by a poem which he wrote celebrating their abolition, and was forced for some time to live in exile. none of its characteristic hardness. He later settled at Milan, where he Thus the combination of animal and wrote a number of poems under the mineral substances serves to produce protection of the Archduke Ferdinand. a substance which is at once hard. He died at Vienna on June 20. tough, and clastic. The qualities of B. He died at Vienna on June 20.

and S., but generally fertile, having fine forests and valuable fruit trees. It is well cultivated, the chief products being rice, grain, fruits, melons, cucumbers, tobacco, cotton. The Foulahs are the prin. inhab., and their religion is Mohammedanism. Pop. 1,500,000.

Bonduku, a town of W. Africa, in the Fr. colony of the Ivory Coast. situated in 7° 45' N. lat. It was placed under French protection by Captain Berger in 1888. Gold dust is the prin. object of commerce. Pop. 3000.

Bondy, a Fr. vil. in the dept. of Seine, in the arron. of, and 6 m. from, Saint Denis. It manufs, ammonia and has a trade in cheese. Pop. 4500. Bone, the hard tissue that consti-

tutes the skeleton or framework of the body. This framework serves to support some structures as a central core, and to protect others as a surrounding casing. The different parts of the framework are articulated or jointed with each other and are converted into levers by which a great number of movements can take place through the instrumentality muscles. Bs. are of various shapes, according to the functions they fulfil. Long Bs., of cylindrical form, are characteristic of the limbs; flat Bs., with a certain amount of curvature, are characteristic of protective Bs.; short Bs. are characteristic of the wrist and instep; while such Bs. as the vertebre and those of the face are somewhat more irregular in form. The total number varies according to age, as may Ds. which are separated in infancy become fused as time progresses, and certain small Bs. are frequently developed in some individuals late in life. There are, however, 206 distinct Bs. in the ordinary adult. The functions and dispositions of the Bs. will be dealt with in the articles on Skeleton, Skull, Arm, etc. Human B. consists of about 31 per cent. of organic matter, and about 69 per cent, of mineral salts, of which calcium phosphate forms the greater part, being 58 per cent. of the whole bone matter. The animal matter may be removed by boiling or charring. When the mineral matter only is left. the B. appears hard and brittle. mineral salts may be dissolved out by treating the B. with acid, when a ielly-like substance remains, preserving the shape of the B., but possessing Bondu is a Fr. protectorate in W. as a useful substance in itself have Africa. It is situated between the been recognised in the arts. It is R. Faleme, and the upper course of stronger than oak, can withstand a

ribs of large animals for making bows. to be covered with a strongly-adhering membrane, which is called the periosteum. Underneath this the B. appears as a hard compact mass, gradually decreasing in hardness towards the axis, so that the inner part of the B. is of a spongy nature, while in certain situations there is a cavity, often filled with marrow, in the interior. In curved Bs. there is a thickthe concave side, where the greatest strain occurs. The B, is thus most economically constructed, the greatest strength and elasticity being combined with lightness of material. Bs. are provided with channels by which the nourishing elements in the blood may penetrate to the interior, while the vessels of the periosteum enter the surface by many fine arteries. Inflammation of B. is called Ostitis, or Osteitis. It is due to the microbe Staphylococcus progences The germs enter with the blood stream, and owing to the dense and compact nature of the B. tissue, they may find a lodgment there, multiply, and form masses of pus. The phosphates, and in the manufacture part of the B. most likely to be af- of porcelain. part of the B. most likely to be ar- of porcelain.

Bone Beds are strata or deposits of between the main shaft and the cartiliones end. The symptoms unsecond in the symptoms unsecond in the symptoms unsecond in the straightful symptoms akin to rheumatism being they contain remains of bones. These felt at the joints, and ultimately a B. B. are really thin layers of the sensation of tenderness develops in remains of bones of reptiles, fishes, the B. the straightful the temperature in the part of the sensation of the sensation of tenderness develops in remains of bones of reptiles, fishes, the B. the straightful the temperature in the part of the sensation of tenderness develops in remains of bones of reptiles, fishes, the B. the straightful the temperature in the part of the sensation of tenderness develops in remains of bones of reptiles, fishes, the B. the straightful the temperature in the part of the sensation of tenderness develops in remains of bones of reptiles, fishes, the B. the straightful the temperature is the straightful the temperature and the temperature is the straightful the temperature and the temperature is the straightful the temperature and the temp B., and the diseased part scraped out.
No mistake must be made about getting rid of the affected matter, it is better to sacrifice some healthy, tissue than allow any trace of the disease to remain. The cavity, of disease to remain. The eavity, of course, must be thoroughly disinfected. In Condensing Oslitis the medullary cavity is filled with a dense bony mass, and new B. appears on the surface, so that the B. becomes heavier than normal. Bs. are liable to fracture by direct violence as in concussion, or indirect violence as from too great a strain. The fracture may be simple, when the B. is broken into two pieces; or compound, when the B. is crushed, or broken in several The treatment aims at ' setpieces. ting ' the B., or placing and keeping the broken ends in such a position that the natural healing powers of the It is desirable, of course, that when the fracture is healed there should be no avoidable shortening or stiffness of the limb. Careful adjustment in the

tremendous crushing strain, and yet is first place, constant inspection during so elastic that savages have used the treatment, and the earliest possible ribs of large animals for making bows. movement of the limb are necessary An examination of a fresh B. shows it to a complete and successful healing of the fracture.

Bone, Henry (1755-1834), an Eng. enomel painter, was born in Cornwall. apprenticed at Plymouth, and afterwards worked at the Bristol china works until they failed. He then came to London, and soon gained a reputation. He was named enamel-painter to George III. in 1801, and elected an associate of the Royal Academy, and a member in 1811. His works are now eagerly looked for by connoisseurs; the best known are the Death of Dido,' and ' Bacchus and Ariadne.

Bone, Muirhead (b. 1876), etcher and painter, studied at the Evening School of Art in Glasgow, and came to London in 1901. He is a member both of New English Art Club and the Society of Twelve.

Bone-ash, the white ash that remains when bones are burnt. Bones are usually boiled to remove the fat and glue-forming substances and the remainder is burnt. The ash consists of tricalcium phosphate, and is used as a manure, in the manufacture of super-

the B. itself and the temperature in and mammals, occurring in certain creases. Surgical measures only are places. At Ludlow, for example, there possible; an incision is made into the is a B. B. stretching for many miles B., and the diseased part scraped out. There are some also in the S.W. of England, and similar ones in Germany. The Rhætic B. B.—so called many. from deposits found at first near the Rhætian Alps—form part of the Triassic System. There is a B. B. under the sea near the Faroe Is., and this contains shells mixed with the bones.

Bone-black, or animal charcoal, is obtained by the dry distillation of bones. When the fat and gelatines have been removed from the bones the remainder is heated in closed The product is about oneretorts. tenth charcoal, the remainder being calcium and magnesium phosphates and other mineral salts. It has been used in sugar-refining for decolourising syrups.

Bonellia is a genus of annelid of the class Echiuroidea. It has an oval body, green in colour, with a long proboscis which is bifurcated, and a long intestine. B. viridis Lurrows in the sand of the North Sea.

Bone Manure, a general name for fertilising agents in which powdered

bones, or substances derived from bones, are present. The most important mineral element which has to be supplied to cultivated soil is phosphorus. Phosphates appear to be associated with the reproducing powers of plants, and where they are in abundance the process of maturing is hastened, and the germinating part of the plant is well developed. The value of bone as a phosphorus-supplying manure was realised by Liebig in 1840, and at the experimental farm of Sir John Lawes at Rothamsted in 1843 the possibilities of artificial phosphates were investigated. bones were dissolved in sulphuric acid to obtain the calcium superphosphate, which was soon found to be of the highest value as a manure. The superphosphate is usually mixed with powdered bones in varying propor-tions to suit the nature of the soil and the particular crops intended. Ordinary bones contain nearly 50 per cent. of calcium phosphate, and when ground make an excellent manure. The phosphate is, however, somewhat slow in its action, and although it enriches the soil for years, it is better to mix a suitable proportion of the more rapidly acting superphosphate.

Bone Oil, a fetid, blackish-brown, thick liquid obtained by dry distillation of bone, or by heating them with water and by use of solvents. tracted also in preparation of bone-black, and used in soap-making. Contains ammonia, sulphuretted hydrogen, pyrrol, etc. Dippel's oil, an animal oil produced by distillation of stags' horns, is used as medicine

Boner, Charles (1815-70), author, born near Bath. In 1831 he became tutor. for about six years, to the two sons of Constable, the painter. Soon after he visited Germany and entered, as tutor, the family of Prince Thurn und Taxis at S. Emerau. During this period, when on a visit to England, he became acquainted with Miss Mit-From 1800 and onwards he lived at Munich, but went to Vienna in 1865, for a time, as special correspondent to the Daily News. Among his works are: Chamois Hunting in

century. He was born at Bern, and was descended from a famous Bernese He probably took clerical family. orders and became a friar. His name is of frequent occurrence between the dates 1324-49. In 1461 his book of 100 fables was printed at Bamberg. He wrote in middle high Ger., and has some claims to originality and style.

Bone-setter, a surgical operator, usually without the customary qualifications, who attempts by manipulation to restore mobility to stiffened joints, etc. Joints become stiffened usually as the result of inflammation. which causes osseous solidification of the joint, or destroys the synovial membrane, or so far weakens and renders useless the ligaments and cartilages that movement is possible. It has long been known that in some cases mobility can be attained by forcibly breaking down the adhesions; and by keeping up systematic movements the tissues can be encouraged to adapt themselves to the mobile condition. Some striking successes obtained by unqualified practitioners in dealing qualified practitioners in dealing with obstinate cases have tended to arouse public enthusiasm in certain advocates of 'bloodless surgery.' The defence of the orthodox surgeon however is, that he prefers to investigate thoroughly the causes of immobility rather than to trust to somewhat violent measures which in certain conditions of the joint are certain to do irreparable damage.

Bonet, Juan Pablo (c. 1590 - 1630). Spanish philanthropist, who in 1620 pub. at Madrid a work on the instruction of deaf-mutes. His method, which was probably largely that of Pedro Ponce de Leon (c. 1520-84), corresponds to what is now known as corresponds to what is now known as the 'combined system,' i.e., he used phonetics as well as the manual alphabet. He taught the meaning of nouns by pointing, verbs by action, and the other parts of speech by continual use. Sir Kenelm Digby, who met him at Madrid, states that his mothods were most successful. He instructed a brether of the Constalle. instructed a brother of the Constable

of Castile, in whose service he was Bonet, or Bonnet, Theophilus (1620-89), Swiss physician, born at Geneva; took his degree in medicine in 1613. and practised in Geneva with great success till about ten years before his death, when, having become deaf, he relinquished practical work for writing. He is best known as having been a pioneer in the science of pathological anatomy, but he also wrote translation of A Danish Story-book, numerous valuable treatises on by H. C. Anderson, 1846. See Memoirs different branches of medicine and and Letters of C. Boner, 1871.

Boner, Ulrich, a celebrated Ger.

Writer of fables who fl. during the 14th, Sepulchretum Anatomicum seu Anarottury. He was born at Born with Carlotture, 1871.

Sepulchretum Anatomicum seu Anarottury. He was born at Born with Carlotture, 1872.

Of this leaf

Sepulcinetum Anatomicum set Anatomia Practica, 1679. Of this last, a corrected ed. by Mauget was issued in 1700. See Nicéron's Mémoires. Bonfadio, Jacopo, Italian philosopher and historian of 16th century, born at Gorzano, near Salo; educated at Verona and Padua; in 1625 beaute private secretary to Car-1535 became private secretary to Cardinal Ghinucci at Rome. After leav-

open air; usually on an occasion of national rejoicing. The derivation of the word has been the subject of some considerable dispute, but most of the derivations of it are now rejected in favour of the one given above. though the meaning which attaches to it now is that of a fire burnt in the open on some open space or hill top open on some open space or lift top on an occasion of national rejoicing, yet the other meanings of the word are still maintained, and the word bonfire is applied equally to a fire for burning bones, a funeral pyre, or a fire in which hereties are burnt. The origin of the lighting of these fires seems undoubtedly to be pagan, since the early Church did its best to stop the habit of lighting fires, which were described as of heathen origin. But it is necessary not to overlook the fact that the early Christian Church adopted the custom of lighting Bs. on sev. Christian festivals in order to make compromise with the heathen. The peasantry of Europe all keep the custom of lighting Bs. on special occasions during the year. In many countries St. John's Eve and St. Peter's Day are celebrated in this way. The greatest 'B. day 'in England is the 5th of Nov., the annual celebration of the escape in 1605 of the king and the legislature.

Bonga, cap. tn. of Raffa, Abyssinia, 340 m. S.W. of Debra Tabor. An im-

portant trading centre.

Bongar is a name given to the genus Bungarus, poisonous snakes in the family Colubride. B. candidus. the krait, is common to India, and though only about four feet in length it is a very deadly reptile.

Bongardia is the name of a genus of shortly before her death. in the East. The leaves of B. chryso-

'Bon Gaultier' was the nom-de-plume of Sir Theodore Materia (1816-1803) as co. of Dambatton and 3 in. N. of that a contributor to Fraser's Magazine; in. It is the bp. of Smollett. Pop. and Tail's Magazine. In 1856, in con- 2510.

Junction with Professor W. E. Aytoun, Boni, a state in the S. of the 1st public and Book of Ballads, by Boni of Celebes, belonging to the Dutch E. Gaultler, which proved very popular. Indies. It is about 860 sq. m. in area.

ing the latter, he travelled through that the latter, he travelled through the latter, he travelled through the latter professor of philosophy at latter professor of philosophy at latter professor at the university of Pavia. In what doubtful charge in 1550. His latter professor at the university of Pavia. In latter professor at the university of Pavia. In latter professor at the university of Pavia. other works include letters, poems, years after became Minister for Public and a translation of Cicero's Oratio Instruction, instituting many reforms pro Milone, all of considerable merit.

Bonfire(Early Eng. bonefire; Scottish time he was in office. During this banetire), in its original meaning a fire for burning bones, now used to designate any fire which is lit in the and sometimes bitter criticism upon the industry was a sensitive to the control of the control o friends and enemies alike. Among his works are A translation of the Dialogues of Plato, 1880, and Storia di Roma, 1884.

Boni

Bongo are a negro tribe who occupy the land in the basin of the Bahr-el-Ghazel, Eastern Soudan. They were onazer, Eastern Soudan. They were formerly subjects of, and have been enslaved by, the Mahdists. They number only about 100,000, and they are medium in stature and of a bronze colouring. They are clever in iron smelting, etc., which metal is used in coinage.

Bonham, a vil. in Texas, cap. of the co. of Fannin. It is situated on Bois

d'Arc Creek, and has a pop. of 3400. Bonheur, Rosalie Marie, usually called Rosa (1822-99), was born at Bordeaux in March. She was descended from a family of Swedish origin and also a family of consider-able artistic talent, both her brothers and her sister gaining a certain amount of fame as artists. Her first instructor seems to have been her father, who was an artist of no little merit. She exhibited between the years 1841-45 at the Salon; in 1848 she was awarded a medal. She had rapidly come to the front as a painter of animals. Her study of living animals and her faithful representation of them are the chief reasons for her success. In her paintings the anatomy of the animals is always perfectly correct. Her international Her international fame dates from her exhibition of painting in 1855. She received the decoration of the Legion of Honour and afterwards became an officer of the same order. After 1867 she only exhibited once at the Salon, in 1899, the order Berberidaceæ which grows her more famous pictures may be in the East. The leaves of *B. chryso*-mentioned: 'Plongbing in the Nivergonum are caten as salad, and the nais,' 1848, at Luxembourg; 'The tubers of *B. Ranwolfi* are also edible. Horse Fair,' 1853, in United States, Bon Gaultier Ballads is the name of a replica in the National Gallery; a book of parodies on modern poetry. 'Hay Harvest in Auvergne,' 1865. 1865.

Bonhill, a vil. of Scotland in the of Sir Theodore Martin (1816-1909) as co. of Dumbarton and 3 m. N. of that

The inhab, are called Bugis, and they heathen they had come to convert have a language similar to that The life work of B. left its mark upon spoken by the Macassars. They pursue agric, occupations, and manuf, a cotton cloth, also trading in pearls, gold dust, nutmegs, camphor, etc. gold dust, nutmegs, camphor, etc. The chief th. is B., situated on the Macassar peninsula, and is bounded by the Gulf of Boni on the East.

Boniface. In George Farquhar's comedy, The Beaux Stratagem, 1707, the landlord of Lichfield was named B., and so this name came to be applied to innkeepers generally.

Boniface, St., the apostle of Germany, was born about the year 680 at Crediton in Devonshire. He received a good education for the time, in Eng-land, and distinguished himself both by his scholarship and by his ability as a preacher. Rejecting all inducements to remain in England, he became a missionary to Frisia, following the example of many other Saxon monks. His first mission, owing to the opposition of the king, was not successful, but after he had received a direct commission from the pope he set out for Thuringia, but was recalled to Frisia by the death of the king who had opposed him. Here he worked for some years under the direction of the Bishop of Utrecht that he was consecrated bishop and received special letters of recommendation to Charles Martel. protection of the Carlovingian made his success possible, as he himself owns, and he now started upon a gainst heathen

rting, and break-

of the heathen. From England he called his great band of missionaries whose aid was so essential to his success. In 732 he was made an archbishop. Later he was charged with the reorganisation of the whole Frankish church, and threw his whole soul into the work before him. He depended upon the support of Carlanan and Pippin, and was able to call together the first Ger. council of the church. He divided Germany into bishoprics as he had already done in Bavaria. He had two great controversies, one with the Irish monit Virgil, the other with a Neustrian bishop who gave utter-ance, according to B., to many heresies and who was condemned in 744 with the aid of Pippin. B. now became bishop of Mainz and metropolitan of Germany. The national church probably at his instigation gave its submission to the Rom. see. In 754 he resigned his see and again

Boniface, the name of nine popes: Boniface I., bishop of Rome from 418-422, was elected in the face of some opposition, but recognised by the imperial gov. owing to a breach of faith by his opponents. This recogni-tion, however, did not end the opposition to him, and there was for some considerable time opposition from his rival's faction.

Boniface II. (530 - 532), by birth a Goth, and bishop of Rome by favour of the Gothic king and the nomination of his predecessor, Felix IV. He only ruled for two years. During this short period he attempted to establish the precedent by which he had become pope, but failed in his endeavour to nominate his successor.

Boniface III. was pope for about nine months during the year 606. He was recognised as the 'head of the church at Rome.'

Boniface IV. (608-615) converted the Pantheon at Rome into a Christian church.

Boniface V. (619-625) is quoted as (Willebard) and met with great suc- doing much to help in the Christian-cess. So great, indeed, was his success is to not England. Bede quotes him that he was consecrated bishop and as writing letters to various of the political authorities in England. He is supposed definitely to have fixed upon Canterbury as the metropolitan see of England, although Augustine had intended London to become so after his ('wavetine's) death

papal throne in the room of Benedict VI. who had been assassinated. After a very stormy career, he managed to return to Rome from which he had been driven, threw Pope John XIV. into prison, and remained as pontiff from 981-985, not quite a year. Boniface VIII., the most famous of

the popes, was born of noble family. and studied canon and civil law in Italy and France. He took part in ser, of the stormy incidents in the career of Henry III. in his quarrel with the barons and people. He became of great importance in the Rom. Church, and in 1294 he succeeded Celestine V. as pope. His papacy was in great contrast to that of his predecessor. He asserted to the full the spiritual and secular claims of the papacy. By most of the Fr. clergy he was disliked and his policy raised up for him a number of other enemies. took up his mission to Frisia, where The attempt to humble Edward L in the same year he and his comfailed, but previous to this he had panions were assassinated by the issued the Bull clericos laicos which

led to the outlawry of the clergy in Bonington, Richard Parkes (1801-England. The Fr. vice-chancellor was 28), an Eng. artist, was born at Arnold sent to arrest him in order that he in Nottinghamshire; his family reshould be deposed by a universal moved in 1816 to Paris, where he was council. He was ultimately captured at Agnaci and taken to the Vatican, Institute of France. He studied under that he was interested and died. where he was imprisoned and died, probably at the age of about seventy,

Boniface IX. (1389-1404), born at Naples of anct. but poor family. He was made a cardinal by Pope Urban VI., whom he succeeded on the papal throne. He won back the greater part of the papal states to the allegiance

the Carthusian Order, became bishop some drawings. of Belley, near Chambery, 1234. His: Bonito is the popular name of the promotion to the see of Canterbury. Thynnus pelamys, an acanthoptery-proved so distasteful to all parties in gious fish of the family Scombridge. It proved so distasterili to all parties in glous lish of the lamily Scombinar. Its England that he withdrew to Rome, belongs to the same genus as the in discust, 1250-2: 1255 B. set out tunny and is allied to the mackerel to relieve his brother Thomas, im-! The flying-fish serves as its food. prisoned for tyranny by the people of Bonivard, François (c. 1495-1570). Turin; 1256 he took part with bishops! the famous prisoner of Chillon' of against the king and pope; 1263 Byron's poem. He was born at joined papel legate in excommunications of the properties of the prope ing the rebellious barons. He died 1270, while accompanying Edward I. Consult Stubbs on a crusade. Registrum Sacrum Anglicanum, 1858; Le Neve's Fasti, 1854; Rose's New

General Biog. Dict., 1848.

Bonifacio is the name of a strait separating Corsica and Sardinia. It is 7 in. wide, but navigation is rendered difficult by the numerous small is. The tu. of B., a port, is situated in Corsica on a peninsula. It is difficult to reach, because the harbour entrance is narrow. Exports are oil and

wine, and coral fishing is one of the chief industries. Pop. 4235.
Bonillo, a tn. of Spain, 34 m.
W.N.W. of Albacete; pop. about 5050.
Bonil telands are is groups situated Bonin Islands are is, groups situated in the N. Pacific Ocean, lat. 26° N., long. 143° E., 700 m. S.S.E. from Japan. They number about twenty. but ten only of them are of any con-iderable size. They have been divided into three groups: the northern group are called the Parry Islands, and those in the centre the Beechey Islands, while the southern group are the Bailey or Coifin Islands. The the Bailey or Coffin Islands. The whole of them are of volcame origin. They were discovered in 1633 by Quast and Tasman. In 1827 Captain Beechey visited them, and took possession of them for Britain, and in 1578 Port the Japanese reclainsed them. Lloyd is the chief port. Pop. 1500.

Institute of France. He studied under Louis Francia and Baron Gros. In 1822 he began to exhibit at the Salon, and in 1824 gained a medal there. In 1825 he began painting in oil; all his pictures are distinguished by the purity and brilliancy of their colouring. He came to England and exhibited sev. pictures at the Royal Academy He had undoubtedly a brilliant career of the papal throne and abolished the before him, but caught an attack of republic in Rome. He was, for the brain fever from exposure to the sun time, a man of good morals, but has: while sketching: he fell into a decline, been justly accused of selling offices; and came to London for medical and of nepotism. Boniface of Savoy, English arch-Collection has a large number of his bishop of Canterbury, 1244-50, son works, both inwater colours and oils; of a count of Savoy and uncle to the National Gallery has one, and the Henry III.'s wife. Eleanor. B. entered. South Kensington Museum two, and

Byron's poem. He was born at Seyssel, being descended from an old noble family of Savoy. He succeeded his uncle as prior of the Cluniae priory of St. Victor in 1510. Resisting the encroachments of the Duke of Savoy. he was arrested and imprisoned. His first imprisonment only lasted for about two years, at the end of which time he was released. But he still remained a great antagonist of the duke. and in 1530 he was again arrested and imprisoned. This was the famous imprisonment during which he spent some four years underground, and was only released in 1536 by the seizure of the castle by the Bernese, who had revolted and won back Vaud from the duke. The details of his im-prisonment as we have them from Byron owe a considerable amount to the imagination of the poet. He became a Protestant shortly after his release, and received a pension from Geneva. He was appoint 1 in 1542 to write an official history of Geneva. and his Chroniques de freneve were written between this time and hideath, although they were not pub untii 1831.

Bonjam, a small the in the valley of Tripoll, N. Africa, streaded 150 m to the N. of Sokna. It is situated in an oasis, and has Rome antiquities and ruins.

Bonn, a city of the Prussian provof Rhineland, situated on the l. b. of the Rhine, 21 m. S.S.E. of Cologne

The city has a pleasant situation, and ciple of royal supremacy in Henry's has been much improved of late years, reign, but refused to take the oath of though the old quarter is still distinguished by narrow, irregular streets.
The cathedral, which dates from the
13th century, is cruciform in plan,
and is a fine example of the late
Romanesque style of architecture. The university, which was instituted in 1818 by the King of Prussia, is a very fine one, and accommodates nearly 3000 students. Other noteworthy buildings are the museum of the Academy of Arts; the provincial and municipal museums; Beethoven's house, which has been converted into a museum since 1889; the castle of Poppelsdorf; and the bridge across the Rhine, 1417 ft. in length. B. is an episcopal see of the old Catholics. It was called Castra Bonnensia in the time of the Roms., and was one of the most important Rom. camps on the Rhine. After being almost destroyed in 1689 by the Elector Frederick III. of Brandenburg, it underwent a siege in the war of the Spanish Succession. In 1717 its fortifications were demolished. It has ample means of com-The manufs., which are munication. ! of cotton and

Bonnat,

(b. 1833), a I was born in Bayonne, and studied in Madrid and Paris. His reputation was first established by his 'St. Vincent de Paul taking the place of a Galley Slave ' (1866), which was followed by other religious and realistic works, such as his celebrated 'Christ Cruci-fied '(1874, Palais de Justice, Paris). Although he also painted several genre subjects, his fame rests chiefly on his portraits, marvellous works of tor Hugo, Don

under whom les Grévy. See

literary work was a treatise on Oriental jurisprudence. He was a friend of Cyjacius, another noted French jurist.

Bonner, Edmund (c. 1497 - 1569), Bishop of London, was of lowly birth, was educated at Pembroke College, Oxford. He was patronised by Cardinal Wolsey, and on the latter's death was favoured by Henry VIII., who made him one of his chaplains, and sent him to Rome to press the claims of his divorce from Catharine. He was made Bishop of London in 1539. He was in favour of the prinsupremacy under Edward VI., and was confined in the Marshalsea Prison from 1549 to 1553. He was restored to his see on the accession of Mary. and was conspicuous by his zeal in the persecution of Protestants during this reign. He refused again to take the oath of supremacy on the accession of Elizabeth, and was again sent into the Marshalsea Prison, where he died.

Bonnet (Lat. bonetum, stuff, thence cap made from stuff) was originally a soft cap or covering for the head. It was worn, and so called, in England until the latter years of the 17th century, and in Scotland till later. The genuine B. of the Scotch pensants was made of a thick woollen fabric. with no lining; it was of a round, flat shape, generally dark blue in colour, with a red tuft on the summit. It was extremely durable. The Glongarry B., which is still worn by Scotch soldiers, rises to a point in front, and has ribbons at the back. Stewarton and Kilmarnock, in Ayrshire, have been noted for the making of Scotch Bs. since very early times. The use of B. as applied to men's headgear has now fallen into desuctude, and the term is applied only to ladies' wear. differs from a hat in fitting closely to the head, and often having no brim. It varies considerably, however, in both shape and decorations, according to the prevailing fashion. The Bs. ing to the prevailing fashion. The Bs. of straw are mostly made in Tuscany, though Luton, in Bedfordshire, makes a large quantity. The most fashionable Bs. of the present day, like everything else in female wear, come from Paris. From the fact that small landed proprietors in Scotland continued to wear Bs. for some time after their use had been discontinued elsewhere, they were known as ' B. lairds. The B. of a ship's sail is an additional piece which is now laced on to Bonnefoy, or Bonfidius, Edmund merly at the top. The term is also the bottom of the sail, but was formerly at the top. The term is also the bottom of the sail, but was formerly at the top. The term is also the company of the company of the bottom of the sail, but was formerly at the top. The term is also the company of the company of the bottom of the sail, but was formerly at the top. The term is also the company of the bottom of the sail, but was formerly at the top. The term is also the bottom of the sail, but was formerly at the top. The term is also the bottom of the sail, but was formerly at the top. The term is also the bottom of the sail, but was formerly at the top. The term is also the bottom of the sail, but was formerly at the top. The term is also the bottom of the sail, but was formerly at the top. The term is also the bottom of the sail, but was formerly at the top. The term is also the bottom of the sail, but was formerly at the top. The term is also the bottom of the sail, but was formerly at the top. The term is also the bottom of the sail, but was formerly at the top. The term is also the bottom of the sail, but was formerly at the top. The term is also the bottom of the sail, but was formerly at the top. The term is also the bottom of the sail, but was formerly at the top.

philosopher. on March 13.

ided for the law, but he was quickly drawn to the study of natural science. His observations and experiments aphides or tree lice gained for him in 1740 the rank of corresponding member of the French Academy of Science, and three years later he became a fellow of the Royal Society. In 1745 appeared his first pub. work, which was called Traile d'Insectologie, and in 1751 his researches in botany and the results he this subject were pub. in Recherches Russian and Persian wars, and was sur l'Usque des Feuilles dans les made governor of Chios. Later he Plantes. He next turned his attention fell under the suspicion of the Sultan, to philosophy, his eyesight preventing him from still further continuing his natural science experiments, and in two essays, pub. respectively in 1754 and 1760, he asserted the prevalence of body over mind. His Conand perfected in a future state. He took little or no interest in politics, but spent the evening of his life in the quietude of his home near Geneva, where he died.

Bonnetable is the chief tn. of the canton of Sarthe, France, situated 14 m. from Mamers, on the Tripoulin. It has manufs, of boots and shoes, and tanning is carried on. Pop. 4500.

Bonnet piece was a gold coin of the time of James V. of Scotland. On it was a figure of the king, who was the first king of Scotland to have dates put on coins, wearing a bonnet on his head instead of a crown. This being the origin of the name of the

Bonneval, the chief town of the canton of Eure-et-Loir, 9 m. from Chateaudun at the junction of the

Loir and the Ozanne: pop. 4000. Bonneval, Claude Alexandre, Comte de (1675-1747). a soldier of fortune of the 17th and 18th centuries. He was born in July, and at the age of thirteen joined the army. He served in sev. campaigns in Italy under such distinguished generals as Villeroi and Vendôme. Later, whilst serving in the Netherlands under Luxemburg, he was condemned to death by court-martial, and fled to Germany. Entering the Austrian service, he showed great courage, and distinguished himself by his conspicuous gallantry.
With the Austrian army he fought
against France, and also against
Turkey. He was allowed, however,
to return to France, but later rejoined the Austrian army. His una quarrel with Prince Eugene, his patron, and later to a quarrel with the governor of the Netherlands. He was again sentenced to death by court-martial, but the sentence was commuted, and he was exiled. He offered his services to the Turkish Sultan, by whom they were accepted. and he changed his faith, becoming a Moslem and taking the title of Ahmed Pasha. He helped to reorganise the Sultan's army, and was given the command of theartillery. Herendered in 1767, was made an associate of the

had obtained from his long work in great services to Turkey during the and was banished to the shores of the Black Sea, where he died.

Bonneville, Nicholas de (1760-1828), man of letters, was president of a dist. of Paris from the first days of the Revolution. With Fauchet he brought templation de la Nature was pub. in out the Cercle Social, the Chronique the year 1764-65. His last work of du Jour, etc. Under the Terror, 1793, importance was Palingénésie Philo-he was imprisoned, and later, under sophique (1769-70), in which he develops the idea he had already put forward that animal life is continued Ger. literature. His Nouveur Théâtre Allemand, 1782-85, and Histoire de l'Europe Moderne, 1789-92, are still quite readable.

Bonneville Lake is an extinct lake of the U.S.A. which in a recent geological period extended over a quarter of the total area of the Great Basin, a vast region of inland drainage in the S.W., extending over Nevada, Utah. Oregon, and California. For further

details, see Great Basix.

Bonney, Thomas George (b. 1833), an Eng. geologist, born at Rugeley, and educated at Uppingham and St. John's College, Cambridge. He wastwelfth wrangler in 1856, and wastwelfth the second of the seco ordained in the following year. From 1856 to 1861 he was mathematical master at Westminster School, in 1868 he was made tutor and lecturer on geology of St. John's College, and in 1877 professor of geology at University College, London. He was president of the Geological Society, 1884-86; secretary of the British Association, 1881-85; and president of the Mineralogical Society and the Alpine Club. His works, which are numerous, include The Alpine Regions, 1868: The Story of Our Planet, 1893: Volcanoes, 1898, etc.

Bonny, a tn. in Southern Nigeria. West Africa. It is situated on a creek on the E. side of the river Bonny, near the mouth. It is swampy, and a most unhealthy tn. It has a large trade in palm oil. The river B. is one of the delta mouths of the Quorra. Its anchorage is good and safe.

Bonnycastle, John (1750-1821), mathematician, was born probably in 1750 in Buckingham. He went to London, and later on kept a school at Hackney. He became private tutor to the sons of the Earl of Pomfret. and professor of mathematics at the Royal Military School at Woolwich. His works include: The Scholar's First Guide to Arithmetic, Introduction to Algebra, Introduction to Mensuration and Practical Geometry, etc

Bonomi, Giuseppe (1739-1808), a British architect, born at Rome of It. parentage. He settled in England Royal Academy, and in 1804 was chosen dean of the monastery in 1470, created honorary architect to St. and spent his time in literary pursuits, Peter's at Rome. He was largely responsible for the revival of the

at Modena; lived at Rome, Berlin, and Vienna, and in London during 1720-31. Famous for his rivalry with Handel. His operas, which have considerable merit, include Tullo Ostilio, 1694; Serse, 1694; and Il Trionfo di Camilla, 1697. He is often confused with his brother, Marc Antonio Bononcini.

Bononia was in Roman times the name given to the cities now known as (1) Boulogne-sur-Mer, a port of France; and (2) Bologna in Italy.

Bonpland, Aimé Jacques Alexandre (1773-1858), a French traveller and retire because of his political ideas, botanist, was born at La Rochelle He spent some of his time after this on Aug. 22. He studied medicine, and second retirement in Denmark, and for some time served as an army sur-geon. In 1799, together with Hum-boldt, he undertook a journey of exploration through Mexico, Colombia,

return to Europe he proceeded to explain in his Plantes Equinoxiales. He was given an official botanical post in Paris, but gave this up in 1816 in Lat. bonus, good, used in a jocular order to again journey to S. America, sense to denote benefits of various where he became for a short time kinds. It is a sum paid to shareprofessor of natural history. He re- holders in a joint-stock company as signed this post in order to explore an addition to the ordinary dividends. Central America. He was arrested by It is generally given out of accumu-Dr. Francia, dictator of Paragnay, lated profits, or the profit from some and kept in prison for over nine years. exceptional transaction, when it is and kept in prison for over nine years. exceptional transcolor the Subsequently he lived at San Borja, not considered advisable to raise the Subsequently Consister and subsequently for the subsequen in the prov. of Corrientes. and . Santa Anna, where he died.

Description des Plantes rares

Navarre, 1813.

Bonsignori, or Buonsignori, Fran-mean any payment more than what cesco (1455-1519), an Italian painter, is due. born at Verona. Comparatively little is known about his life. Many of his works remain at Mantua and Verona, and some are to be found in the principal European galleries. Vascari declares him to have been a pupil of Mantegna. His best known works are paintings of the Madonna with saints at Verona (Pinacotheca and St. Fermo), and portraits at Florence. See Vasari's Lives of Italian Painters, 1895.

a member of the Einsiedeln monastery

writing many works connected with his monastery and its patron saint. Meinrad. His other works were numerous, and include: Description of classical style of architecture in England. He was the architect of Lang-land. He was the architect of Lang-ford Hall in Shropshire, and Dale Park in Sussex.

Bononcini, Giovanni Battista (c. History of the House of Austria, 1491; and Account of the Wars of Charles

Bonstetten, Charles Victor de (1745-1832), a Swiss writer and publicist. He was born at Bern, of Fr. descent. on Sept. 3. He was educated at first at home, but afterwards at Leyden, in France, and in England. On his father's death he entered political life, and became a district governor. But his ideas were too liberal, and after the taking of the Bastille he had to retire. In 1795 he again became a governor of the It.-speaking part of the republic, but again in 1798 had to finally settled down in Geneva in 1803, where he died. One of his greatest books was the study of the effect of climate upon different nationalities, L'homme du Midi et Phomme du Nord, 1824. Other works are Recherches sur la Nature et les Lois de l'Imagination, 1807; Etudes de l'Homme, 1821; Pensées Diverses, 1815.

Bonus is a word derived from the

amount added

his works may be mentioned tof the policy graphic des Mélastomées, 1806; and by a distribution pro rate of the de accumulated profits, or of the surplus. In a more general sense B. is used to

> Bonvalot, Pierre Gabriel, b. 1853 in Epagne (Aube), Fr. explorer. In 1882 he travelled in Central Asia, from 1885-7 in Persia and the Pamirs, and in 1889-90 in Siberia and Tonkin. Among the prin. books pub. by B. on bis voyages are: De Moscou en Bac-triane, 1884: De Paris au Tonkin a

travers le Tibel inconnu, 1892. Bonvin, François (1817-87), artist, born at Vaugurard. He taught himself painting, and although he took some of the Flemish masters as Bonstetten, Albert von (c. 1441- took some of the Flemish masters as 1504), a Ger. monk and author, was his models his work is characterised by the portrayal of everyday life to a of the Benedictine order, situated at realistic degree, indicating a close Einsiedeln in Switzerland. He was study of the life of the people around the life of the working people with whom he had come in contact. Among his best known pictures are 'L'Ecole d'Orphelines;'' La Charité, '1852; 'La Basse Messe,' and 'La Cuisinère,' 1855.

Bony Fishes, technically known as constitute by far the Teleostei. largest and most important sub-class of fishes. They are to be found in fresh, salt, and marsh water, and their bodies vary in shape from the piscine and flat to the snake-like. The features which all forms bear in common are: a bony skeleton with vertebræ, a skin covered with soft light scales, an anus, optic nerves which cross without fusion, and the absence of a spiral valve in the in-testine. They frequently possess an air-bladder, and the eggs usually develop into larvæ. The great into larvæ. authority on this subject, Dr. Günther, has divided the Teleostei into six groups: the Acanthopterygii, or spinyrayed fishes, as the perch, mackerel, and blenny; the Pharyngognathi, like the above in some respects, but having only some of the rays of the finsspiny and the lower pharyngeal bones fused, as the wrass; the Anacanthini, with soft fin-rays, as the cod; the Lophobranchii, with tufted gills, as the pipe-fish and sea-horse; the Physostomi, with soft fin-rays, open duct to swim, and bladder, as the salmon, herring, and eel; the Plectognathi, with pectine gills bones of upper jaw movable, as the trunk-fish,

have elongated snouts, their bodies are covered with thick scales, and in habit they are predaceous. Lepidosteus osseus is a species commonly found in fresh waters of N. America.

fan sung, member of a monastery) is a member of a Buddhist monastery. The word is applied by Europeans to any priest in Japan and China.

Booby is a species of bird which is closely connected with the gannet, and receives its humiliating name

Indeed, most of his pictures, bushes, and in having no feathers on have for their subjects incidents in its throat and lower jaw. It is persecuted by the frigate or man-of-war bird, which belongs to a different genus of the same family, and is compelled to give up to it the fish which it has captured. The birds are cosmopolitan except on cold shores; S. cyanops comes from the S. Pacific, and S. australis the southern seas.

Booby Island is situated in Torres Strait. It is dangerous to navigation. Passing vessels frequently put off with supples of water and food for

the island. Book. The name given to a literary

production, usually of one volume, but if of more forming a single work. The word has been variously derived, but the derivation which presents least difficulties is that from boo (A.-S. beech). Almost as far back as it is possible to trace any form of civilisation in the world, it is possible also to trace the existence of Bs. of some form or other. The early form of B. differed essentially from the printed and bound volume that we call a B. at the present time, but nevertheless the clay tablets, covered with cunciform inscriptions, on which we find the decisions of the law courts of Babylonia, have a right with the printed matter of the present day to rank as Bs. More in the direct line of descent, however, are the papyrus rolls of early Egypt, covered with the hieroglyphies of the priestly Egypt tians, and of enormous antiquity. The fashion thus set of recording upper jaw movable, as the trunk-fish, globe-fish, and porcupine fish. See Dr. A. C. L. Günther's Introduction to the Study of Fishes, 1880; G. A. Boulenger's Systematic Account of the Teleostei, 1904.

Bonyhad is a Hungarian town, situated about 148 m. from Budales Pesth, in the co. of Tolnu. It trades in corn, wine, and tobacco.

Bony Pike, Billfish or Garpike, is the name applied to the garoid fishes of the family Lepidosteidæ. They declining, and the prepared skin of the family Lepidosteidæ. They declining, and the prepared skin of the family Lepidosteidæ. events on papyrus was one which redeclining, and the prepared skin of sheep and goats was gradually brought into use as a substitute, proving so successful that it was only replaced later by the invention of paper, an Bonze (Japanese pronunciation of the East, and to which the name of nanyrus was transferred. The prepared skins perpetuated the name of the originator, the king of Pergamos. in the name of parchinent. During the period of the predominance of papyrus the usual form of B. was the long roll wound round a stick, but from the ease with which it allows with the commoner use of parchment itself to be captured. With the gannet the B. form as we know it at the it forms the genus Sula of the family present time began to be used. With steganopodide, but it differs from the invention of printing the form of the gannet in breeding on trees and Bs. did not undergo any very great

used was almost of a necessity similar to the caligraphy which had been in common use up to that time. Bs. were first printed without titlepages, and the information concerning the printer and the place where the B. was printed was given at the end of the B. It was not until the beginning of the 16th century that Bs. began to be printed with a title-page, and the name and address of the printer, to-gether with the date of printing. The Bs. produced in the early days of printing were very large, and owing to the method of binding very heavy as well. They did not immediately become cheap or common, but on the former point it is difficult to obtain definite information. During the 16th century the introduction of a smaller type, and the reduction in the size and weight of Bs., did much to popularise them and to make them cheaper, and many Bs. during this period were brought within the reach of ordinary people. The 17th century saw during its early days a falling off in the printing of Bs., which increased rather than lessened in price. Towards the end of the century, however, Bs. began to improve in printing, although they did not cheapen in price. The 18th century saw a great improvement in the printing and binding of Bs., and the prices of these Bs. again became reasonable. were often published by subscription, and then the price was high. Illustrations began to appear in them, and it beginning this period that we get the beginning of the popularity of the novel, which was usually printed in several volumes. The price of Bs. during the greater part of the century. was fairly uniform, and Bs. could be bought by all classes save the very poor, but towards the end of the century the prices again rose. 19th century saw a vast improvement in every respect. Bs. were well bound, well printed, and in many cases well illustrated. The publishing of Bs. at popular prices began, although Bs. which were printed cheaply were as a general rule not printed, nor yet bound, well. The many inventions of the century, however, helped on the publication of Bs.—they were able to be obtained by Bs.—they were able to be obtained by every one; but the problem of the good B., well printed and well bound, good B., wen printed and wen bound, at a really cheap price, was one of the problems which was solved during the early years of the twentieth century. Nowadays Bs. of all sorts and descriptions can be purchased by all sorts and conditions of men. Bookbinding includes all those pro-

cesses whereby the leaves of books century. In Germany the books were are bound together in such a manner usually bound in pigskin, vellum, or

change at the beginning. The type; as to keep them in order and protect them from injury. It may be said to have begun when the method of making books from strips of parchment wound round rollers at each end. was superseded by the method of fastening leaves together at the back and placing the so formed book between covers for protective purposes. Before the days of printing, as early as the 6th century, the monks had carried the binding of manuscripts to a very high plane. They bound the manuscripts between boards, which were afterwards decorated with metal and jewels. This was known as the Byzantine style of binding. The Byzantine style of binding. The majority of the books so bound were destroyed by people seeking for gems that were supposed to be hidden in their covers which were made of wood of great thickness. Then between the 10th and 14th centuries the monks of England, having copied and improved the designs of books brought from the East, became the foremost binders of Europe. The binding of books was now done by the aid of leather stretched over the boards and decorated with the impress of small stamps bearing

The introduct

gave a great B., and as the number of books increased so the office of bookbinder from became separated This, together with the inprinter. printer. This, together with the introduction into Venice from the East of the use of gold leaf in the decoration of bindings, caused the end of the 15th and beginning of the 16th centuries to be one of the finest in the history of B. At this time morocco leather was first used, and with the sid of fine delicate tools for increase. aid of fine, delicate tools for impressing designs on covers, the result was the foundation of an exquisite art for the decoration of bindings. Venice was the seat of this rich ornamentation, and the distinct character of the designs originated there gives rise to the Venetian pattern of tool. Two of the most celebrated patrons of the art in Venice were Tounnaso Malol and Jean Grolier of Lyons, sometime treasurer to the duchy of Milan. When Grolier returned to France, he had his books bound under his own supervision in such a manner that they cannot be equalled even to-day in beauty of design or in excellency of workmanship. The French school of binders, led by Nicolas and Clovis Eve in the 16th century, Le Gascon and Du Scuil in the 17th, and Padeloup and Derôme in the 18th century, ably followed up the impulse given to the art in France by Groller, and kept it unrivalled until the end of the 18th

calf; the latter being preferred for its folding stick, made of wood or bone, softness and smooth surface and its shaped like a paper knife. When foldgreat advantage

i.e. the impression the use of gold.

who stand out: comparatively recent time. While we may mention Thomas Berthelet, binder to Henry VIII., and John Gibson in the reign of James I., yet Mearne, binder to Charles II., who originated the Cottage style of ornamentation. In the 18th century Robert Harley, Earl of Oxford, had books bound in red morocco with centre panels surrounded by a broad tooled border, so founding the Harleian style. Other names to be noted are Baumgarten and Benedict, Kalthoeber (credited with the introduction of painted edges, though according to Zachnsdorf, he rediscovered the secret if it had been lost, for it had certainly been done in the 16th century), and Staggemeir. At the end of the 18th century Roger Payne used original artistic tools of his own design, always finishing his bindings in accordance with the character of the book. These were followed by Lewis, Mackenzie, Hayday, Zachnsdorf, while to-day the art is again being revived, after a period of stagnation and imitation in the 19th century.

Modern divisions.—Large editions of books are now covered with cloth ordinary cloth binding is described as casing, and the

for leather-cover the boards are

before covering, whereas in easing the boards are covered and then glued to the book. Nearly all branches of B. to-day are performed by machinery. The work is divided into sections, forwarding and finishing. Forwarding includes the folding of the sheets, gathering, and collating them; sewing,

nming; gluing, g; and making is the process'

of blocking or decorating the cover. Folding.—Books are usually received from the printers in sheets numbered with a signature. From the number of folds in a sheet a book again across, making four larger than the others.

ing, the greatest care is taken to keep the sheets in register, i.e. to see that the printed columns coincide, giving equal margins and horizontal printed lines. The most usual size for folding is the octavo, which gives sixteen pages in the section or signature. Folding can be done by machinery, of many different makes, but the principle in almost every case is the same. The machine is fed by a girl, who obtains correct register by means of guides or by means of holes perforated in the sheet in the process of printing. which have to be placed over pins on the feeding board. These machines can be obtained to give any number An arm in the of folds required. machine, with a thin blade, takes the sheet through a slot in the table, and it then passes between different sets of rollers at right angles to each other. The folded sheets are passed into a box at the side of the machine, at the

rate of forty to forty-five a minute.

Gathering.—When the sheets have been folded into sections, then they have to be gathered into books. The usual way of gathering by hand is by laying piles of sheets on a long table, a section being taken from each pile in turn. A revolving table is some-times used, but a machine has been patented which by means of moving fingers takes one section at a time from each gathering-box depositing by machinery at a very quick rate, them on a moving band. After Since this process differs materially gathering, the book must be collated, from that of leather binding, the i.e. looked through to see that there are no sections misplaced or pages out of place.

Beating and rolling.—When the book has been gathered it is either beaten on a stone or iron slab with a stone or iron hammer, or it is passed between rollers regulated by a screw. In the case of beating it is protected with paper, and in rolling with tins. Either process is performed with only a few sections at a time, and the object is to make the book as solid as possible. Usually the book is pressed for a while after rolling to ensure solidity, and is sewn before it is This is now done in what pressed. is called a nipping machine.

Sewing and stitching.—After being which require folding. Each sheet is pressed the books are then knocked to bring them square and are placed in the number of folds in a sheet a book the press again with the back prois known as a folio, quarto, octavo, jecting. The back is then marked duodecimo, etc. Folio implies one with a pencil at a number of equal fold down the centre, or two leaves distances from the top in such a way to the sheet. Quarto refers to sheets that the space at the bottomis slightly Then at a leaves to the sheet. Similarly, octavo little distance from the head and tail means eight leaves to the sheet, of the book a line is sawn in, so that When sheets are to be folded by hand, what is termed the kettle-stitch shall then the only instrument used is a not be divided during subsequent

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cutting. Sometimes the markings are; and the fore-edges of another pile to sawn in also, by hand with a tennon saw or with a machine-driven circular saw. Hand-sewing is done on a press which has a crossbar from which are suspended vertical lay cords. On these are fastened the cords which will bind the book together. These These cords are then fastened to keys. Through small holes in the backs of the sections the needle is passed round these cords, so fastening the section to the cord. The sewing cord is continually joined up, so that it is a continuous cord through the whole book. When the back has been sawn in, then the sewing cord is merely passed up through the centre of the section and over the binding cord, and it is with this system that the hollow backs of most books are obtained. Of the many types of sewing machines, one takes the sections from a radial arm, where they have been placed by a sewer, punches holes in them, and sews them up at the rate of 20,000 sheets a day. The other type is a wire machine which turns wire into staples; forces them into the sections from the inside, and turns them down. It is fast, but will not supersede the old method for a while, already

dean with wome or cance preparatory work in a large number of places, forwarding commencing with end-papering. At both front and back waste paper or end-paper is pasted on. Later the cover is fixed to the book by means of these. In end-papering many kinds of paper are employed, chief among which are Cobb, surface, fancy, bronze (German), coloured pastes, and marbled papers.

Trimming.-Most books are now bound with cut edges. In these cases, after sewing up, the book is placed either in a press and cut with a circular plough, or as is the case with large outputs, in a guillotine. A guillotine consists of a bed upon which the book is placed and adjusted by gauges, and knife then descends which cuts the edge accurately at the places which have been marked with compasses. When the fore-edge has been cut, the when the fore-edge has been cut, the bottom and the top may be treated in the same manner. With very fine work the cutting of the top and bottom is left until the book has been rounded and backed. Other forms of machines which have been devised are those which by means of a turntable allow the three edges to be cut table allow the three edges to be cut with only one setting of the book, and those which allow the bed to move upwards and downwards and the knife to remain stationary, thus ad-ferent ways, to prevent the solling mitting the tails of one pile of books which must happen with white edges.

be cut simultaneously. Gluing up.—The books are now knocked up until they are square, and they are then placed between gluing boards, and a hot coating of glue, which is not too thick, spread over the back; the object of this is to aid in the holding of the sections together, and to make the back firmer to withstand the rounding and backing pro-cesses. Usually the back of the book is on a level with the edges of the gluing boards or press, but some binders leave a little of the back projecting, in order to allow the glue to work better between the sheets.

Rounding.—The trimmed have now to be rounded. The purpose of this is to prevent the back sinking All books are not rounded, many books, e.g. Dent's Everyman series, having flat backs. When the book is to be rounded, it is either taken when the glue is not quite dry, or the glue is moistened slightly. It is then pulled into a round shape with the left hand and hammered with the right until it takes a rounded form. This is performed on both sides of the book and requires great care. Books are also rounded by machines of various types. all of which work upon the roller principle, the books being turned several times and placed against rollers with each turning.

Backing.—The book has now to be

backed, or grooved, so that the boards may turn on them as on a hinge, and may fit closely against the sides. Therefore, according to the thickness of the covers, the groove must be made deep or small. The book is placed between two backing boards with the back slightly projecting, and the book adjusted until the rounding is even and the head and tail seen to be rectangular. The whole is now fixed in a press in such a way that the back will fall outwards, forming a sharp groove. It is then hammered into position. Bucking is also performed by a machine which consists of a roller running over the clamped

and backing is performed by the same machine. These operations of rounding and backing have the greatest importance to the finished book. ay result in

books. In some cases the rounding

or skewing. pearance of

dents in the cover.

Decorating of edges. — Ordinary clothcased books have either plain trimmed edges or are deckle edged, i.c. rough and uncut. But as in the case of leather-bound books the edges may be decorated in a number of difThe edges may be sprinkled with spots of one or more colours. A simple paper has been laid on the back of the sprinkling of one colour is obtained book to strengthen it and to cause a by letting drops of the paint fall from hollow back, the difference between a paste edge is produced by laying on the place of handwork. After these a very thick mixture of paste and covers have been finished, as will be colour, and working designs with a explained later, they are pasted to the cork or the finger tip. One of the books and pressed, after which the finest methods of decorating edges is that known as marbling. This is a special branch of the trade which requires experts, and is made a specialty of. It depends upon the fact that colours mixed with oxgall will float upon a sized surface, and a colour containing more gall will force the first off. Again, they can be drawn about with a stick and still will not The smooth edge of a book will take these colours up, so the marbling is prepared in a trough and the edge of the book dipped in it diagonally from corner to corner. This must be done before the book is rounded, or if after, then the book must be knocked back for the process. There are many recognised varieties of design in modifier the commonst of sign in marbling, the commonest of which is comb or feather marbling. The most elaborate system of decoration is gilding. This is performed by placing the book in a press and scraping the edges smooth with a steel scraper. A mixture of black-lead and glair - white of egg beaten to a froth in water—is then rubbed over the edges, and when this is dry the gold leaf is laid on the edge from the gold cushion to which it has been transferred from the gold-leaf book with a gold knife. The book is now gently turned to allow the glair to drip off, and at the right moment, the burnisher polishes this with a highly polished agate or bloodstone. To produce a dull gilt the burnisher is rubbed over tracing paper waxed on the side adjacent to it and with the other side resting on the edge. If a high polish is required the edge is afterwards rubbed with a linen rag and a little beeswax, and again burnished.
As with marbling, the fore-edge has to be made flat, which necessitates it being tied back if it has been rounded gilding may be mentioned plain gilt, gilt on red, as in bibles; tooled with a design, or painted with a landscape only seen when the book is open.

Casing,-After a lining of mull or by letting drops of the paint fall from a brush rubbed on a fine sieve. When cloth casing and B. is apparent. For two or more colours are used then sand is spread over the edges to keep some portions protected from the colour. Again, edges may be coloured plainly, in which case the colour, cloth is glued carefully and the back. Alter over the edges with a sponge or corners, to prevent thick folds when be seen when the book is open, it is it is turned over the boards. In this, usual to draw the book back. Again, again, machines have largely taken a paste edge is produced by laving on the black of handwork. After these books and pressed, after which the cloth-eased book is ready for use. This, too, is now done by machinery.

Binding.—With leather binding

the process is different in most cases. Although sometimes the leather covers are made separately and placed on the book complete, yet the proper method of binding is that by which the covers are built up around the book. To the book in the state already described under the decoration of edges, head bands are added of vellum or catgut covered with silk or cotton, or of calico over cord. The purpose of these is to prevent too great a strain coming on the book when it is being taken from a shelf. Bands—five as a rule—of leather are now pasted or glued on the backs of the books, and to these the mill or straw boards may be fastened, either in the ordinary way, by gluing to the inside, or by gluing the band to the outside of the cover, when there is a deep groove, or the bands may be grawn or laced through the covers. In the case of books which have a flexible back, the leather is fastened directly on to the book, and it con-sequently adheres to the back of the book, although it is flexible enough to allow of the book opening.

Coverings. - Bound books covered with either split sheepskins, sheepskins, morocco, or any other leather, parchment, vellum, cloth, velvet, and imitation leather. Special processes are required for each of these. Those bound in leather may be either bound in whole leather, or half bound, having the corners and back made of leather and the sides of cloth or paper. The third type is the limp type, which has the cover flexible th marbling, the fore-edge has and pasted directly to the back of the made flat, which necessitates it book. After the covering has been tied back if it has been rounded put over the boards the end-papers Among the different types of are pasted down to the boards and the inside covered with paper.

Finishing .- With bound books now (and with cased books before the cover is added to the book) the

cover has to be embellished. When type Club, founded by Scott in 1823; small ornaments are used and made the Maitland Club; the Abbotsford up into a design, it is known as hand-Club; and the Camden Society. finishing, and when a large design is may be blind or gold. Gold tooling is performed by pressing gold leaf on to a specially prepared surface, and brushing off the gold leaf not stamped on. Blind-tooling is of course merely an impression on the leather or other cover, without any colour whatsoever. antique or monastic tooling. Blocking is now done by machines in several colours at once, at the rate of 700 to 800 copies per hour.

Bible bindings are usually in leather, flaps. or yapp—soft with flap—covers, specially gilded edges, and tasteful linings for the covers.

right manner by building the covers

ing new books, the second for the printing of books in connection with a certain subject or study. Formerly proceeds carried forward. Such clubs are now practically extinct owing to the growth of cheap literature and circulating libraries. The other kind of B., for the printing of books, still Wm. Davis, 1821. It is often said that exists, both in this country and the the element of rarity is over-estimated U.S.A. As first founded, they were by book-collectors. In this conneclargely convivial clubs, holding din-ners at intervals. Each member was bound to defray the cost of reprinting as many copies of some scarce work as there were members in the club; the chairman's copy was generally printed on yellum. This practice is now superseded, each member of a B. paying an annual subscription. The oldest B. is the Dilettante Society. which dates from 1734; another very anct, club is the Cymmodrovion, or the Metropolitan Cambrian Institute. The first B, which was carried on after modern methods was the Roxburghe Institute, which was instituted in 1813. Other famous B. are the Banna- ally said to have originated in the

Book-collecting. It is axiomatic used then the process is known as among book-collectors that the value blocking. In either case the tooling of a library must depend almost enof a library must depend almost en-tirely upon the skill of the particular collector. B. may assume many forms, but there ought to be some central idea dominating the bringing together of a mass of books, coupled with the adoption of some method of classification. Some collectors are Blind tooling is sometimes termed attracted almost solely by the rarity antique or monastic tooling. Block- of a book, others by the arc: yet others by the lure of a first or early edition, by the splendour or tastefulness of the binding, while some desire to get together as many books as and offer facilities for a display of possible on certain specific subjects taste on the part of binders, owing either for their own edification or with to the custom of having rounded a view to ultimate transference to the corners, limp, soft corners without public. The ideals of book-collectors change with the times, and it serves no purpose arbitrarily to give precedence to any particular one. Hardly Account-book binding needs special more can be said than that the domicare, and is usually performed in the nant idea should result in the collection of books which both contain an up on the book. The head values, boards, and end-papers are much stronger than in any ordinary classes of binding. See Cockerell, Bookbinding; market value. B. in the true sense ing; Roger, Art of Bookbinding; must be distinguished from the formation of a public or working library. Again it it is desired merely library. Again it it is desired merely in the procure as large a number of B., the first for the purchase and read-different books as possible, the British Museum collection, which numbers over one-third of the books extant, would be the ideal collection. Finally. certain subject or study. Formerly many clubs used to be formed for the purchase of the best works of the day as they issued from the press, and for the distribution of them in turn among the members. The books thus bought were sold annually, and the proceeds carried forward. Such clubs evidently anything but a bibliomaniae is to be found in A Journey Round the Library of a Bibliomaniae, by Wm. Davis, 1821. It is often said that tion it is not far from the truth to assert that rarity does not depend on the number of copies originally printed, but rather on the existence or otherwise of the belief that any particular book will always be easily An illustration of this, procurable. given in Slater's Library Manual, is furnished by the celebrated 'Elzevir-. or books bound by Louis Elzevir of Leyden, who flourished in the 16th century. Although the market was for that period flooded with 'Elzevirs' they never became common, and are almost as diligently sought after as ever. B. in the modern sense is generpublic-spirited action during the Tudor period, after the dissolution of the monasteries and the plundering of the monastic libraries, of Arch-bishop Parker and Sir Pobert Cotton. who made it their business to rescue as many of the books as possible. A number of modern collectors owe their treasures to the purchase of old libraries belonging to private owners. But a certain eclecticism has to be exercised, for not all the old private libraries constituted collections in the appropriate sense, many of them being overwhelmed with theological works, and many others being ac-cumulations of books purely for the purpose of study. The tasteful bindings of Grolier (see also BOOKBINDING) the Renaissance, probably added a stimulus to a form of B. Undoubtedly an immense impetus was given to B. by the introduction from Holland towards the end of the 17th century of the custom of selling old books by auction, and the hobby of B. quickly prices copies at from £100 to £500. In the Book Prices Current for 1912 the the Book Prices Current for 1912 the Canterbury Tales, printed by Caxton about 1478, is priced at £905. Some of the most celebrated sales held in this country include those of the libraries of the Duke of Roxburghe in 1812 for £23,400; Wm. Beckford (author of Vathek) in 1823 for the record price of £89,200; Richard Heber in 1834-7 for £57,500; the Earl of Sunderland in 1881 for £56,350; the Earl of Ashburgham in 1867.98 the Earl of Ashburnham in 1897-98 the Earl of Ashburnham in 1897-98 for £62,700; and Lord Amherst of Hackney in 1908-11 for £34,878. Volumes A to D of the Huth Library have up to Sept. 1912 produced £80,990, so that this sale when completed will easily produce the highest sum ever reached in this country. For the form time as to prices we the full information as to prices, see the annual volumes of Slater's Book

Book Illustrations, see ILLUSTRA-TIONS.

Book-keeping is the science of recording commercial and pecuniary transactions in a systematic and accurate manner, that will preserve a distinct record and thus enable one at any subsequent date to understand their nature and effect with clearness and expedition, and also enable one to ascertain the exact state of the financial position of a business. It is of the utmost importance that all transactions should be correctly entered, as the stability of a business depends on the accuracy of its books, for these may be regarded as a mer-cantile chart, by a reference to which a merchant should be able to obtain and other French and also Italian information as to his trading: whether bookbinders which appeared after a certain dept. is paying or worked at a loss, and whether his business is improving or likely to lead him to the bankruptcy court. That bankruptcy is often caused through inefficient B., or keeping no books, is very evident, for hundreds pass yearly through the auction, and the hobby of B. quickly bankruptcy court whose books are became fashionable. Prices have hardly intelligible. The satisfaction fluctuated from time to time. Greek arising from ready reference to one's and Latin classics, even those of the commercial transactions should in Elzevir' and 'Aldine' Presses fell duce him to understand the practice 'Elzevir' and 'Aldine' Presses fell duce him to understand the practice in value in the course of the 19th of systematic B. Bankrupts can be century. The close of that century, punished for keeping unsatisfactory however, saw a rapid increase in the books (the Bankruptcy Acts, 1883 prices of specimens of early printing, and 1890). Companies registered illuminated manuscripts, first editions of English classics, and the earlier Act, 1908, are compelled to keep at French and Italian prints. Caxton's, least five statutory books, and have however, have more than held their their books audited annually by a own. Slater in his Manual of 1884 'public accountant.' Under Section prices copies at from £100 to £500. In 26 of the Companies (Consolidation) 26 of the Companies (Consolidation) Act, 1908, it is obligatory for a public joint-stock company to submit an annual statement in the form of a balance-sheet, audited by the company's auditors, to the Registrar of Joint-Stock Companies. The earliest known treatise on B. was by Lucas de Burgo, 1494, but the subject can be traced to the introduction of barter, and whenever the transactions involved credit, the then traders had recourse to the ele-mentary form of the notched stick, or chall marks on a handy rock. In the 15th century the great mercantile cities of Northern Italy, at that time the chief commercial centres of the chief commercial centres of Europe, adopted the principles of double entry (doppia scrillura), and this system, under the name of the 'It method,' gradually made its way over Europe, many of the original names still being used in the practise of the science. The double entry system first appeared in England about the beginning of the 17th com-As annual volumes of Stater's Book. The method, gradually made as wellPrices Current. As to technical over Europe, many of the original
appellations and marks by which the
genuineness of old books may be
of the science. The double entry
tested, see Slater's Library Manual. system first appeared in England
For other information, see Elton's
about the beginning of the 17th cendreat Book: Collectors, Fletcher's
English Book Collectors, and Guild's
The Librarians' Manual.

The Librarians' Manual.

3:

£140 13

There are one or two different sysfirm keeping their transactions and by the balance in hand, at bank, and accounts in the modern method are:

Private ledger.—This contains the records of the capital and 'drawing,' records of the capital and 'drawing,' and the profit and loss accounts; thus if there were two partners in a firm, each contributing as capital £5000, the respective amounts would be credited to separate 'capital accounts.' The heading would be Mcrehants' Capital Account, and the amount of each maid in by one partner would be eash paid in by one partner would be entered on first the ye £5000, th

employed Drawing account: 111 thus would be entered on the left hand (debit) side the sums drawn out by the partners, and on the credit side the interest allowed on the capital of each partner, to record particulars of goods sold on and also the share of the profit credit, and is usually in an analysed realised or loss sustained; when the form, to facilitate the dissecting and drawing account is balanced the dif- summarisation of a variety of goods; ference should be transferred to the thus, by employing a system of grouprespective capital accounts of the ing the different sales, the merchant partners. Profit and loss account: To this would be debited all the trade expenses and on the sale of penses, and on

have the gros of course, as

transferred to the drawing account. would be constructed thus:

There are one or two different systems of B, and the so-called single of the ledger, which is separated for tems of B., and the so-called single of the ledger, which is separated for entry is but an unsystematic, unspurposes of convenience. In modern reliable, and often misleading method B. It is always taken for granted that the very reverse to a system. It the eash book is separate from the merely consists of personal accounts, ledger, and is used alone for entering which only enables a trader to ascertain with whom he trades, and a mass if in integral part of the ledger, all of incomplete memoranda from which it is almost impossible to discover whether a profit has been made or from John Jones, £6, would be not read to the entered in the eash book on the debit not. The double entry principle is the entered in the cash book on the debit only system of any use; it is matheside, and posted (the act of separately matically correct in its results, and transferring the entry to the account gives a complete statement of all which such an entry affects in the business dealings. The books kept ledger). This would make the double by a merchant vary according to his entry. Thus we see that every entry business, and on taking up the study that is debited in the cash book is of B, one is not taught how to keep credited to a corresponding account of B. one is not taught now to keep creation to a corresponding account the books of a particular trade such in the appropriate leger, and vice as those of a cloth merchant, wine versā. It is the practice of a cashier merchant, or a publisher: but the to enter cash receipts from the accomprinciples that will admit of general panying statements or cheques, and application to modern business, and the payments from the memoranda this knowledge an intelligent person or counterfoils in the trader's posseswill have no difficulty in applying to sion; then the corresponding entries any specific business, the difference (debit or credit) are made as soon being, as one can see, only a matter after this as possible. The cash book of detail. The chief books used in a should be balanced monthly, checked

> Cash receipts, as per £2000 17 cash book Cash payments, as per cash book 1560G €440 13 Balance In hand-Gold £10 0 5 10 Silver 0 G O Copper € 15 11 125 At bank

> The sales or day book is used daily most. A simple form of analysed sales book would be required by a trader dealing in corn, flour, and maize, it

SALES BOOK (ANALISED FORM)									
Date	Sold to	Particulars	Fol. Corn Flour	Maize Total					
1912 Oct.	J. Jones	1 Sack Flour 1 ,, Corn 1 ,, Maize	$\frac{66}{1000} + \frac{600}{1000}$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$					

When the particulars of an order purchases are entered, the various have been entered in the sales book, purchases extended to their respective the invoice should be made out there-columns, and as the persons named in from and dispatched to the customer, the 'purchases journal' are creditors then the entry should be posted to the they will therefore be posted to the debit side of the customer's account credit side of their personal accounts, in the ledger: this makes the double as with the sales book. The 'purentry. The sales book should be carectasts of the entry and the sales book should be carectasts; the sales book should be carectasts; the end of a period and the totals forward, and at the end of a given posted to the debit of the purchases period, usually monthly, the final account, thus saving a multitude of totals are posted to the credit of the entries in this account.

totals are posted to the cream of the sales account, thus showing at a glance the correct sales of each parpractice the journal proper has almost been done away with, in fact some the sales of the sal The purchase or bought day book.— important business houses employ no In many business houses, purchases journal proper at all. On the Conform a considerable part of the trans-tinent, however, the journal is still actions, and various methods are extensively used, being ruled to conemployed to record them as concisely tain the whole of a trader's transacemployed to record them as concisely tain the whole of a trader's transacas possible. If the trader employs tions. In France, under the Code of
a good system, the labour involved Napoleon, its use was made compulrecording them is considerably lessend. It will be found that the pursend. It will be found that the pursend. It will be found that the pursend involces will be received of all
shapes and sizes, and in order to
shapes and sizes, and in order to
shapes account, and the bought
form of journal is simple: it common
purchases account, and the bought
for mof journal is simple: it consists
day book, or as it is usually called,
the purchases journal, is employed;
particulars, folio, and two cash
this is on the same principle as the
columns for debit and credit; a usual
sales day book, and in this all credit

JOURNAL

Dr. Cr. 1912 Folio £ s. d. £ s. d. Bad Debts Account . . . Oct. 1 66 600 To H. Cooper To H. Cooper Being amount written off, Debtor having absconded.

many trading concerns to make and receive payments by methods differing from coins, bank-notes, or cheque.

Bills of exchange, or 'drafts,' are stamped promises to pay, and according to the Bills of Exchange Act, 1882 (15 and 46 Vict. chap. 61), may be defined as an unconditional order in writing addressed by one person to another, signed by the person giving it, requiring the person to whom it is addressed to pay on demand, or at a fixed or determined future time a certain sum in money to, or to the order of, a specified person, or to bearer. A bill of exchange has many advantages, although some business houses do not adopt bills of exchange. considering them as significant of a state of weak finance. Some of the chief advantages of a bill of exchange

Bill Book.—It is the custom of covery in the case of non-payment. A firm may be financially embarrassed but have a considerable amount owing in book debts, so they arrange for some of their debtors to accept a bill drawn upon them; they can then obtain financial relief in a number of ways: discount the bill with a banker or bill broker, who will advance the money on it, subject to the deduction of a small discount, or they may transfer it by endorsement to a creditor. As it would be inconvenient to post a bill of exchange direct to the ledger on account of the numerous features of it, e.g. the dates of acceptance and maturity, the names of the acceptor, the bank payable, etc., it is usual to keep a separate record called a bill book, which sets forth in analysed form the date drawn, the drawer, bank payable at tenor of bill, are: it is a negotiable instrument, a and due dates, these particulars being convenient method for the transfer of required for the due recording of a debts, and there is prompt legal re- bill. When a bill has been accepted

and received by the 'drawer' it is entered in the bill book, and the 'acceptor' immediately credited, and at the end of a given period the bill book is added up and the total transferred to the debit of the 'bills receivable account,' thus we have the double entry. The entries necessary and it also does away with the inconform a bill payable would be vice venience of a cumbrous book. Bought

been damaged in transit, portions may be unsatisfactory and not up to sample, the wrong goods may have been sent. In the case of 'returns inward' a credit note should be at once made out, stating particulars of the returns and allowance, and should be entered at the same time in the returns book, which follows on lines similar to the 'sales day book,' the item should be posted from there into the customer's account in the ledger; the returns book should be added up at the end of the period, and the totals transferred to the debit of the 'sales account.' Returns outward: In the majority of cases are entered at the back of the 'purchases journal,' posted

purchases account. would contain particulars of all pro-nerty and nominal accounts. Proall property acquired is posted on the debit side of the account, and is always regarded in business as a debtor to the trade for the amount paid in that direction. Sometimes property is parted with; when this is so, the respective property account should be credited. Nominal accounts are the subdivisions of the profit and loss accounts, and would be divided to have the sales ledger divided into date, it should never be headed parts or sections, such as town, with 'Dr.' or 'Cr.'; some accountry, and foreign, and in some cases these are subdivided, so that profix 'To' and 'By,' which is one ledger may be in four, then each ledger will contain so many letters of 'sheet is:—

for a bill payable would be vice venience of a cumbrous book. Bought Returns book.—In many cases a ledger is the facsimile of the sales trader returns goods for various all items being posted that the sales reasons; some may be the sales trader returns goods for various all items being posted that the sales reasons; some may be the sales trader returns goods for various all items being posted that the sales trader returns goods for various all items being posted that the sales trader returns goods for various all items being posted that the sales trader returns goods for various all items being posted that the sales trader returns goods for various all items being posted that the sales trader returns goods for various all items being posted to the sales trader returns goods for various all items being posted to the sales trader returns goods for various all items being posted to the sales trader returns goods for various all items being posted to the sales trader returns goods for various all items being posted to the sales trader returns goods for various all items being posted to the sales trader returns goods for various all items being posted to the sales trader returns goods for various all items being posted to the sales trader returns goods for various all items being posted to the sales trader returns goods for various all items being posted to the sales trader returns goods for various all items being posted to the sales trader returns goods for various all items being posted to the sales trader returns goods for the sal chases journal and placed on the credit side of the bought ledger. This and the debtors ledger especially should

be posted daily.

Trial balance.—This may consist of the total postings to the ledger, or the balances appearing at a certain date before the closing entries have been made. The correct method to use when preparing a trial balance is to extract the debit and credit balances and not the total postings, and is generally adopted in business. It exhibits in a concise form the information from which, after the necessary adjustments have been made, a profit and loss account and balance sheet can be constructed. The total of the debit balances should agree with the trom there to the creditor's account, and the total of the 'returns out- they should not do so it shows at once ward' posted to the credit of the that an error has occurred either in postings or in the compilation of the Ledgers.—An impersonal ledger trial balance. Even if both sides agree there is still the possibility of perty and nominal accounts. Property or real accounts would consist of buildings, plant, and machinery, stock, goodwill, copyright, patents, etc., and in the case of these accounts therefore, only proves that there is a constant of the co therefore, only proves that there is a credit for every debit, but in practice, if the trial balance agrees, it is generally taken that the postings have been correct, and that the accuracy of the books has been proved.

Balance sheet is a summary in a classified form of the balances remaining in a set of books, kept by some losses they should be debited to their respective accounts, when a gain, such as interest, discount, or rents received, then they should be accounts, when a gain, such as interest, discount, or rents received, then they should be condited. The sales ledger contains the record of all the sales to customers. In very large establishments having an extensive turnover it is a sales. double entry, extracted after all the

Assets

BALANCE SHEET OF WILLIAMS & McDonald on 31st Dec. 1911

Capital Accounts—R. H. Williams P. McDonald	£10,000 10,000		Freehold Premises Plant and Machinery Stock on hand Sundry Debtors	£10,000 5,000 4,000 8,000
Sundry Creditors— On open ac- counts On Loan	£4.000 2.000		Cash at Bank .	 1,000
Balance, Profit .		£28,000		£28,000

B. is one of the subjects taught in | the majority of the education institutions in London and the provs. It is possible to obtain free tuition at any of the evening class centres held by the London County Council during the winter session. The pupils are entered for the examinations held by the public examination bodies, at whose examinations any one may sit on payment of a small fee. The prin. London bodies are: the London Chamber of Commerce, the Society of Arts, the National Union of Teachers; the Association of Book-keeping Teachers, etc. In addition to the above are the special professional societies for whose examinations only those who are specially qualified or possible to obtain free tuition at any

Liabilities

wards sewn in with their corresponding sections by the guards. In England there is no probability of any discovery of B. before the reign of Elizabeth. Movable B. in handpainted woodcuts, displaying the particular heraldic escutcheon supported by some allegorical figure, are re-corded by Warnecke as having adorned by Warneske as having adorned the books given in the 15th century to a German branch of the Carthusian monks. The B. of Sir Nicholas Bacon, now to be seen in the university of Cambridge, seem to be the earliest extant English B. It contains a somewhat flamboyant device above are the special above are the special societies for whose examinations only those who are specially qualified or the bottom right, which articled are permitted to sit. Textbooks recommended for use: Book-keeping and Accounts, by L. C. Book-keeping and Accounts' Book-keeping and a wild boar. At the bottom is the motto Medicaria firma (things which are moderate are sure), and also in of a shield, with two stars at the top left hand corner and again towards the bottom right, with bars across the Book-land, see BOCLAND.

In the title of the family lead of the sent of ratches. Alropos and Clothilla are be looked upon merely as adjuncts to genera which include mischievous B.

Book-making, see Betting.

Bookplates. In its technical sense the word bookplate is synonymous with the term ex libris. Ex libris means literally 'out of the books' taste in decorative symbols. In this means literally 'out of the books' taste in decorative symbols. In this means literally 'out of the books' taste in decorative symbols. In this means literally 'out of the books' taste in decorative symbols. In this means literally 'out of the books' taste in decorative symbols. In this means literally 'out of the books' taste in decorative symbols. In this latter and more elaborate class of cases even great names have figured the book, and is frequently adorned with book, and is frequently adorned with a fr manship

fusion of the ornamental accessories of drapery and scroll-work, but with a corresponding plainness in the heraldry itself. Later the elaboration of the drapery and scrollwork surrounding the shield becomes very considerably modified, and a still greater simplicity reveals itself in the armorial element. Representations of oaken frames fancifully designed, and the conventional shell, and scroll-work in imitation of the rococo decoration

become 1 ence bet is that in the later all semblance of flatness or mere outline in design disappears in favour of the pictorial representation in light and shade of all manner of objects, e.g. there is one composed entirely of books arranged in the form of a frame with a scroll in the centre, bearing on its face the initials of the owner. The introduction of so many different objects bearing no sort of relation to the armorial bearings of the owner naturally produced a general appearance of incongruity, and led to a reaction in favour of greater consistency and simplicity of style. The shield once more comes to the front as the really prominent object, but its shape, instead of varying with the owner's taste, becomes almost always assimilated to that of an urn. accessorial ornamentation consists in general of sprays and wreaths, but occasionally of something far more elaborate, e.g. a B. designed by Bewick shows an urn-shaped shield with the head of some mythical heraldic animal upon it, resting on a bluff of ground surmounted by foliage with water, boats, and a church in the and sider varic been established. Both are or quito recent

origin, a fact which has led to the conclusion that the systematic study of B. is a modern event. At the present day B. are as popular as ever. and many modern English artists of great repute have made a special feature of designing them, the B. for the most part being reproduced by some form of process work. In style they are as highly artistic as ever, but there is once more observable a reversion to the elimination of heraldic in favour of symbolic devices.

Book-scorpion, or Chelifer cancroides, is an arachnid of the order Pseudoscorpionida and family Cheliferidæ. They are brownish in colour, increasing sound, B. has come to have two eyes, and probably live on mean a sudden spurt of activity in the book-lice (q.v.).

any larvæ which feed on the paper, binding, and paste of books which are not often used, or are stored in museums. They may merely attack the binding, or may bore tunnels through the pages. Sev. species of Anobium, Anthronus, Ptinus, and Dermestes are coleoptérous insects of destructive nature which damage books. In America the Phyllodromia (or Blatta) Germanica, a cockroach known as the Croton bug, performs the function of a B., though it is naturally not considered as one. Frequent overhauling of books is the best preventive of such pests. See W. Blades' Enemies of Books, 1896; J. F. X. O'Conor's Facts about Book-worms, 1898.

Boole, George (1815-64), an English mathematician and logician, was born at Lincoln. He became an assistant master in a Doncaster private school at the early age of sixteen, and later established a school of his own at Lincoln. In 1849 he was made pro-fessor of mathematics at Queen's College, Cork. His first important publication is the Mathematical Anal sis of Logic, 1847, followed in 1854 by An Investigation of the Laws of Thought, etc., the work on which his fame chiefly rest. fame chiefly rests. He also published a Treatise on Differential Equations, 1859, and a Treatise on the Calculus of Finite Differences, 1860, and con-tributed many valuable articles to mathematical journals.

Boom, a Belgian tn., in the prov. of, and 12 m. from the city of Antwerp. There are brick and tile works. breweries, salt and starch manufs Pop. 15,925.

Boom is, in a ship, the name of the spars which are attached to the most at one end, and controlled by the sheet at the other end, extending along the foot of the sails. According to which sail it is connected with, it is termed the jib-boom, the main-boom, In modern ironclads Bs. are fitted along the sides, and form the supports for the torpedo nets. A B. is also used for the barrier of timber, etc., which is fastened along the mouth of a harbour in war to prevent the entrance of the enemy's vessels, as the famous B. in the siege of Londonderry in 1689.

Boom, a word used with regard to commerce. In this sense its origin is American, having come into use during the latter half of the 19th century. B. (M.E. bummen) means 'to make a deep continued sound,' and as a sudden movement often produces an business world.

Boomerang, a missile made of wood Book Trade, see Publisher. Boomerang, a missile made of wood Book-worm is the name given to used by the aborigines of Australia

known, but it seems to have been the one of the best being that by Reuben word used by the aborigines of New G. Thwaites, Daniel Boone. 1902. SouthWalesfortheweapon which they Booneville: A town of Oneida themselves used. It does not boom co., New York, United States of when travelling through the air, but America, 58 m. E. of Oswego. when travelling through the air, but rather makes a whistling noise, and for that reason may be regarded as not being onomatopæic. The return B. is made of hard wood, and in Australia is always curved at an angle of between 90° and 120°. It is between two and three ft. long, and weighs roughly half-a-pound. One side of it the convex side runs a sharp, the convex side runs a skew, and upon the skew depends the return or non-return of the B. The B., when about to be thrown, is held vertically, and when thrown as much rotation as possible should be imparted to it. After describing a circle of considerable diameter, it returns to the thrower. It has been known to return to the thrower even after striking the the thrower even after striking the research of B. throws has realways. Pop. 4377.

Boops, a genus of acanthopterygii specific, and the Kansas and Texas railways. Pop. 4377.

Boops, a genus of acanthopterygii specific, and the Kansas and Texas railways. Pop. 4377. is flat, the other convex, and along The war B. is of the non-return type, and is a weapon of considerable effect in the hands of a skilful aborigine.

Boomplaats, a tn. of S. Africa in the Orange Free State. It is the site of a battle fought in 1848, when the British under Sir Harry Smith defeated the Boorsunder A.W. Pretorius.

Boondee, sec BUNDI.

Boone, a city of B. co., Iowa, U.S.A. It has machine, gloves, tobacco, harness, tile manufs, besides a pork-packing factory. Pop. 6520.

Boone, Daniel (1734-1820), Amerimeeting with many adventures. 1775 he led the party of settlers who founded the tn. of Boonesborough in

and of some other places. There are where in 1803, when this ter. came two kinds of B., which must be care into the possession of the U.S.A., he the non-return B. and again lost his land for the same reason, the non-return B. The latter is used in 1812 he was granted some land as by the natives for the purposes of war. a recognition of his services. Many The origin of the term is not definitely biographies of him have been written,

Manufactures gloves, leather, churns,

etc. Pop. 4118.

Boonton, a city in Morris co., New Jersey, United States, situated 25 m. N.W. of New York. The prin. occupation of its inhab. is smelting the magnetic iron of the neighbouring Kittalinny Mts., and there are large iron-works and blast furnaces for this

characterised by the species possess-ing trenchant teeth. They are carnivorous, often brightly-coloured fishes, inhabiting tropical and temperate seas, and are usually edible. B. salpa, or Sparus salpa, has a bluish body

with yellow stripes. Boorde, or Borde, Andrew (1490-1549), an Eng. physician and author, was educated at Oxford. He joined the Carthusians while still a minor, and was made suffragan bishop of Chichester in 1521. He was freed from his reservity was 1529 and from his monastic vows in 1529, and can backwoodsman and pioneer, of then studied medicine, afterwards Eng. descent. He was born in Penn-travelling on the Continent. He was, sylvania. His carly life was spent after he had returned to London in sylvania. His early life was spent after he had returned to London in on his father's farm, but a fair 1534, sent on a mission by Cromwell amount of his time was given to to discover the state of feeling which hunting. In 1767 he visited the dist. prevailed abroad towards the Eng. of Kentucky, which, however, he was not the first to discover. Later again in 1538, and finally settled at in sev. campaigns he explored more thoroughly the ter. of Kentucky, been imprisoned in the Fleet. His neeting with many adventures. In works show that he possessed considerable learning.

Boos, Martin (1762-1825), a Ger. Catholic priest, born in Bavaria. In Kentucky. Later, during one of his Catholic priest, born in Bayaria. In expeditions, he was captured by 1790 he originated a religious moves the protestant. Shawne Indians, adopted into the ment parallel to that of the Protestant tribe, and only managed to escape with considerable difficulty. For a kirchen, and his views found much short time he sat in the Virginia favour with the Catholic laity and legislature as the representative of even with many priests. He was perkentucky. He lost all his land in secured by the Catholics, but himself tentral even with many priests. Kentucky owing to his want of formal always remained a stanneh Catholic. titles, and retired later to Missouri, He was created professor of theology

post till 1819.

supply auxiliary dynamos help the accumulators to discharge, but when the call

tract confession from suspects: Ιt seems to have been first introduced in Scotland, where its use appears to have continued down to the union of

the two enacted be used to have

about t made usually of wood and iron, and was fastened on to the leg of the victim, wooden wedges being afterwards inserted, usually between the B, and the calf, and driven in forcibly with a wooden mallet. Between the blows. questions were put to the sufferer until he either confessed or was mercifully released by unconsciousness. At the same time that this instrument of torture flourished in Scotland, a similar instrument was used in Germany called the 'Spanish B.' Other varieties of the same instrument seem to have been Bs. which were placed on the victim and then excessively heated, and Bs. made wet and then placed on the victim's foot and slowly

Booten, or Bhooten, see Burrani Bootes, a constellation next in the Bootes, a Creat Bear. If the heavens to the Great Bear.

regarded—as Plough, or a regarded as B. was, in

fact, termed by the Greeks Archiophylax, the 'bear-keeper.' Alpha Boötes, or Arcturus (q.v.), is the brightest star in the northern sidereal hemisphere, and Miræ (c Boötes) is a beautiful binary of orange and green.

Booth (from a Scandinavian root, seen also in the Icelandic bua, to dwell, and the Dan. bod) is a covered stall at a fair or market, set up for the purpose of displaying goods for sale. At first a B. was a purely temporary structure, taken down each week after market day, but there was always a tendency for the B. to become permanent, Records, dating as as not held to far back as the 12th century, have have been a very great success, and preserved many complaints lodged in fact was by many held to be, in com-

at Düsseldorf in 1810, and held the Bury St. Edmunds made a quite fruitless attempt to remove the sheds Booster, a small dynamo worked as which citizens had dured to set up an auxiliary to a larger one for the without the abbot's consent. That purpose of charging, or adjusting the charge, of accumulators in an electrical supply station. It is usually grew up in Edinburgh High Street. A arranged that when the load on the burgess became so attached to his dynamo is greatest, the own little niche beneath the tn. hall, that the timber planks of his movable stall were gradually replaced by for current is less, the Bs. serve to lath and plaster, and even by brick re-charge the accumulators.

| lath and plaster, and even by brick and stone. These unsightly 'krames' Boot, Boots, or Bootikin, an instru- or Bs., fastened to the basement of ment of torture used in order to expublic buildings, have been apply compared to limpets on a rock. shopman stood within the unglazed window, the shutter of which divided horizontally in the middle, so that the upper part formed an caves or awning, and the lower portion a shelf for his wares. The Bs., almost the exact replicas of those of the middle ages, which are still found at Woy-hill Fair, Andover, in many parts of France, and throughout Asiatic cities, may be quoted as an excellent example of the vitality of ancient custom. They must have been a picturesque

feature of mediaval fairs. Booth, Barton (1681-1730), an Eng. actor in the reigns of Anne and George I., joined a company of strolling players in his youth. He had considerable talent, and was received in Dublin with great applause. In 1701 he came to London and joined the Drury Lane Company. His most famous part was that of Cato in Addi-His most son's play of that name. He was buried in Westminster Abbey. His Life was written by Colley Cibber and Victor.

Booth, Charles (b. 1840), writer, was born in Liverpool, and is a member of the firm of Alfred Booth & Co., Liverpool, and a fellow of the Royal Society. He has made inquiries into the statistics affecting various social questions, and in his book, Life and Labour of the People in London, 1892-97, he deals with these statistics, and discusses the condition of the different classes. Mr. B. is one of the people who have done a great deal towards securing old age pensions, and on this subject he has written the fol-lowing books: Pauperism: a Picture: and Endowment of Old Age: an Argument, 1892, and Old Age Pensions and the Aged Poor, 1899. Booth, Edwin Thomas (1833-93),

the second son of the English actor. Junius Brutus B., was born at made sev. ap-

previous to his

against encroachments on the market-parison with his father, rather a place. Thus in 1192 the Abbey of failure. After the death of his father

and met with overwhelming success. New Connexion, he severed his con-From this time his fame as an actor was never questioned, and he was held to have surpassed his father in many of his most famous characters. On his return from his somewhat prolonged tour, he played at the Winter Gardens in New York, producing Shakespearean plays on a magnificent scale. During the period which fol-lowed the assassination of President Lincoln by his brother, John Wilkes B., his career was rather overof it. Later he built a theatre of his own in New York, but this ruined him financially. He produced here a number of Shakespeare's plays, and by great labour was able to retrieve his fortunes. He founded the Player's Club in New York, and converted his own priyate residence into a club house. He toured Great Britain in 1880, and again in 1882. He was everywhere received with the utmost enthusiasm. Amongst the parts which he played were: Macbeth, Othello, Lear, Wolsey, Richelieu, and Sir Giles Overreach.

Booth, John Wilkes (1839-65), the younger brother of the above-mentioned actor. He and his eldest brother, Junius Brutus (fils), played together with Edwin Thomas for some time. In 1865, disappointed by his ill-success as an actor, he entered into a conspiracy which had as its ultimate object the assassination of Abraham Lincoln, as a revenge for the ill-success of the Confederates. He shot the president and managed to escape, alsident and managed to escape, although he had broken his leg. He was, however, ultimately tracked to Virginia, where, since he refused to surrender, he was shot.

Booth, Junius Brutus (1796-1852), was born in London. He received a fair education, and after trying a number of professions eines he had

number of professions, since he had always shown a great liking for the stage, he appeared at the age of seventeen in some unimportant parts. Two years later he appeared at Covent Garden, and from this time was considered one of the best actors of the age, and Kean's greatest rival. He became famous as an actor in the United States, to which country he migrated in 1821. His most famous characters were Shylock, Richard III., and Lear. His eccentricities during

his later years bordered on insanity. Booth, William (1829-1912), better known as General B., was born at Nottingham. At an early age he came under strong religious influences, and, after having been a local preacher with the Wesleyan Method-

he toured California and Australia, ists and a minister of the Methodist nection with those bodies and engaged in evangelistic work. His work was done amongst the poorest and the most degraded people, and he organised them into bands who openly testified to their conversion. organised successively a number of missions, the most successful of which was the Salvation Army in 1878. The army endeavours to bring religion to those places which the churches cannot or scarcely touch, shadowed by that event, but later, and to make their converts open wit-on his reappearance, he was greeted lesses for Christ. The army, in spite everywhere with enthusiasm in spite of general opposition at its com of it. Later he built a theatre of his mencement, has met with great and mencement, has met with great and long sustained success. It has spread its field of operations to practically every civilised country in Europe, and the head of the army, 'the General,' was W. B. His wife was of great help to him in his work during her lifetime; she died, however, in 1890. General B. died in 1912, after a painful illness. The world-wide manifestations of sorrow which followed his death testified to the population. lowed his death testified to the popularity and intensity of the movement he had founded.

Booth, William Bramwell (b. 1856). Booth, William Bramwell (b. 1856), eldest son of the great 'General' of Salvation Army fame, born at Halifax. Educated privately, he began public work in 1874. Chief of Salvation Army staff since 1880; chairman of Salvation Army Life Assurance Society and the Reliance Bank. Married a daughter of the late Dr. Soper of Plymouth, 1882; has two sons and five daughters. All the family join enthusiastically in carry-ing on the great work started by his father for the relief of the 'sub merged tenth.' On his father's death (Aug. 1912) he succeeded him as new General of the 'Army.' Among his publications are: Books that Bless, Social Reparation. Our Master, Servants

Social Repuration, Our Master, Servants of All, Bible Battle-Axes.

Boothby, Guy Newell (1867-1905), popular novelist, born at Adelaide, S. Australia, on Oct. 13. His grandfather was a Yorkshireman, who emigrated to Australia in 1853. G. B. finally left Australia for England in 1894, and, settling at Bournemouth, soon estab. a reputation as a novelist of the popular type. His novels in clude: A Bid for Fortune, or Dr. Nikola us Vendetta; sev. sequels to this, introducing Dr. Nikola, The Beautiful White Devil, The Fascing. tion of the King, etc. He died at Boscombe.

Boothia, Gulf of, a passage of water forming the N. boundary of Boothia Felix. It is an extension of Prince Regent inlet, and is about 310 miles

Boothia Felix is a peninsula situated time of the Egyptians; papyrus was on the N. coast of British N. America. It belongs to the Franklin dist., and its area is about 13,100 sq. m. It was discovered by Captain Ross, 1829-33, and named after Sir Felix Booth, who financed the expedition to the extent plaited straw. In ancient Greece the of £17,000.

Booth Line of Steamships, founded at Liverpool, 1866; at first carried passengers and cargo between Europe and the Amazon ports of Brazil. 1882 began running vessels between New York and Brazilian ports. Amalgamated 1901 with Red Cross Line, also manages the Iquitos Lines. The company owns some thirty-eight vessels (Benedict, 1894; Javary, 1898; Amazonense, 1899; Ambrose, 1903; Francis, 1910: Aidan, 1911), and carries the royal mails to N. Brazil. Large ships are being constructed for the fleet. Cheap trips to Spain and Portugal are undertaken by this line. London offices: 11 Adelphi Ter. W.C. Bootle, a bor. of Lancashire, Eng-

land, is situated at the mouth of the Mersey, and forms a northern suburb of Liverpool. It is noted for its immense docks along the banks of the riv. It has very large iron and engineering works, several tanneries, jute factories, corn mills, etc. There are three stations, each on the Liverpool overhead electric railway. B. is a fine town, containing many large public buildings. There is a splendid museum, library, town hall, and sev. parks and recreation grounds. Pop.

69,393.

Booton Island, an is. of the Malay Archipelago. separated fromsouth-eastern ray of the Celebes and the is. of Muna by a narrow strait. It is high and wooded, and produces timber, rice, sago, etc. The pop. are Malays; the area is 1700 sq. m., and the pop. 18,000.

Boots and Shoes. Many and various have been the different forms of covering for the human foot, and many stages of evolution have been passed through from the primitive sandal to the latest products of the boot factories. Not only fashions, but climatic conditions, have always been potent factors in the form of foot-gear: an article fitted for the wear and tear of an arctic expedition would obviously be out of place in a tropical territory. The most elementary form of covering is the sandal; the next is the slipper, in which the straps or from the slipper the ordinary short hand; but shoe making as a handshoe is evolved, and from the latter eraft is dying out, and in the majority the boot. As it is the most primitive, of cases may so naturally is the sandal the most processes. ancient form of foot-covering. In ancient form of foot-covering. In ducts do not equal the best of those nearly every museum specimens can made by hand in flexibility or endur-

a common material for sandals of that period. In very many parts of the world sandals are widely used to the present day, in India and China for instance, made mostly of grass or sandal was used by all classes of the people, long boots being used by hunters only. In Rome there were more varieties: 'soleie,' or sandals. were used by the plebs or common people; 'calcei,' or black leather shoes, were worn by members of the patrician class: red leather shoes were reserved for the use of senators. Long boots were worn by hunters, and the 'cothurnus,' or boot with a very on the stage. From very early times up to the present day, the Oriental nations have excelled in the art of making beautifully ornamented and decorated slippers, which are usually worn in those parts of the earth. In mediæval times shoes were worn on the continent of Europe, and by the end of the 14th century the fashion of pointed toes had been carried to such a length that the toes of many shoeof that period project for over a foot. in a long curled-up strip of leather. By the time of Edward IV, the boot proper was de rigueur as an article of knightly attire, and continued so until the until the boot was 11. William I lished the use of the jack-boot for horsemen, and it was used by the British cavalry until quite recently. A somewhat less cumbersome form is still used by the Horse Guards. jack-boot was superseded in general use by the Hessian boot, which was more sightly over the tight pantaloons in vogue than the former. For use under loose pantaloons the Duke of Wellington introduced the boot which bears his name; though not used now in this country, it is still worn in some parts of the Continent and the U.S.A. After the Wellington the Blucher boot was used, and now the form of boot worn is a short boot just covering the ankles for men's use. and somewhat higher for ladies. In the last fifty years, such strides have been made in boot and shoe manufacture, and there are so many varieties, that some account of the processes through which the boot passes is necessary. Until the advent of machinery, all boots were made by of cases machinery is used for all the processes. The machine-made products do not equal the best of those be seen of sandals dating back to the ance; but a more even standard is

latter practically on a par with the best of the former. The difference best of the former. The difference between the riveted boot, made by the Blake process, and a welted boot is briefly as follows. A Blake or riveted boot is sewn, or riveted, from sale to insole, at one operation; the upper is at the same time fastened between the two soles. This vertical seam, even if sewn, has a tendency to stiffen the boot unless the leather used is exceedingly light and flexible. If the boot is riveted, it is still stiffer, and therefore this style of boot is used only for rougher wear. When a boot is welted, whether by machine or hand, the upper, insole, and welt are first sewn together with a horizontal seam, extending half through the insole; the welt and sole are then joined by a second operation. The defect of the Blake and riveted boots is by this means eliminated, as the boot bends inwards along the horizontal seam, and is much more pliable. In almost all modern factories human labour is dispensed with as much as used more than in the rest of the pro-cesses. For the upper parts of the boot the thinner and more pliable parts of the skin are used, whilst the thicker portions, such as butts, shoulders, and bends, are used for the sole. The first process in making the uppers is cutting them out according to pattern. The skin is laid upon a bench, the pattern is placed on the top of it, and the leather is cut round the edges of the pattern with a sharp knife. The various pieces of the uppers are then sent to the machiner room. A great variety of machines are here used: stitching machines have been proposed to the stitching machines. button-holing machines, edge-foldmachines. machines, barring machines for attaching buttons, machines for trimming the edges of the leather, sewing machines of various kinds, etc. In lace-up boots, a single machine punches the hole, puts in the eyelet, and fastens it. The leathers that have to be seamed or folded are skived ' first in this room, then they are pasted together and placed under the sewing-machine, and after they have been stitched together the seamare levelled down by a small machine hammer. The thicker leathers used in the bottom parts are cut out from the skin, after being pressed under powerful presses, with variously shaped dies according to the various parts

attained, and the output attained by required. The layers of leather remachinery is of course much greater. quired for the heel are first of all The Blake machine for sewing the soles together marked the first step in chine, and then crushed solid in the transition from hand to machine another, which exerts on them a presented more recently for welting the parts of the boot are now sent to boot has rendered the best of the assembling room, preparatory to latter practically on a par with the being started through the machine on the assembling room, preparatory to being started through the making and finishing rooms. The boots which are to be made Blakesewn receives lightly different treatment from those that are to be welted. The Blake last is iron on the bottom, and so the lasting machine permanently tacks the upper to the insole with short tacks, which are clenched when coming into contact with the last. The sole, which has been previously channelled for the thread, is now placed in position, and sewn through with the Blake machine. In the welted boot the upper is not nailed down to the insole, but is held by a lip previously cut in the latter, standing out therefrom vertically. The lip, the upper, and the welt are all three sewn together by a then machine, whilst the boot is still on The the last. The welt is now beaten out straight, and the sole laid on and held in position by paste, etc., until it is stitched. From this point the treat-ment of Blake and welted boots is similar, save that the former generally have the nails driven from the possible; in shaping the uppers it is inside through to the heel, while the latter have the nails driven through the heel to the sole. After the wearing part of the upper has been stitched by wire, the boot is 'made,' and re-quires only finishing. In the finishing room the heel is first trimmed into shape, and then smoothed with sand-paper. The sole is treated in the same way, and the edges of both are then coloured and burnished with machine-driven hot irons. In welted boots a machine now makes the prick marks between the stitches, and the bottoms are then coloured, and given a gloss by revolving brushes and pads. The boot is now finished and ready for wear.

Booty means literally that which is seized by plunder or by violent means. That which a robber takes by violence or cunning is B. In a special sense it denotes things taken by land force-in war. In England the High Court of Admiralty has jurisdiction to try any question concerning B. of war which may be referred to it by the Privy Council. Property captured by the naval forces is called 'prize' and forms the peculiar province of the Prize Court of the Admiralty. See also PRIZE.

Bopaul, see BHOPAL. Bopp, Franz (1791-1867), a Ger. philologist, studied at Aschaffenburg under Windischmann, and afterwards

stayed successively in Paris, London, married; he himself married Cathaand Gottingen, studying the Hindustani languages. He returned to Germany, and in 1821 was created professor of philology and Sanscrit at the university of Berlin. In the following year he was elected a member of the Royal Prussian Academy, and in 1857 he was made an associate of the French he was made an associate of the French Academy. His prin. works are: A System of Conjugation of Sanscrit compared with those of Greek. Latin, Persian, etc., 1816; A complete System of Sanscrit, 1820; A Critical Grammar of Sanscrit, 1829-32; A Sanscrit Glossgry, 1830; A Comparative Grammar of Sanscrit, Zend, Greek, 1841. Vibusain Slavenic, Galbie Latin, Lithuanian, Slavonic. Golhic, and German, 1833-52; Indo-Celtic Languages, 1839, etc. He pub. also selections from the Mahabharata. His work marks the beginning of a new era in linguistic study, as he traced the common origin of the grammar forms and their inflections from composition of Sanscrit, Gk., Persian, and Ger., a thing never before attempted. He did not profess to be the first to show the common origin of the above languages: that was already a matter of comparative certainty. But by an historical analysis of the forms which he traced, the materials were furnished for a trustworthy history of the languages compared. He never made any money by his studies, and died in comparative poverty. See the biography of F. B. written by Lefmann, 1891, and Benfey's Geschichte der Sprachwissenschaft, 1869.

Boppard, a Prussian tn. situated on the l. b. of the Lower Rhine, about 9 m. from Coblentz. It is a very anct. place, possessing traces of Rom. times.

Bora, the Italian name for the violent, cold, dry, N.E. wind which is common in the Adriatic, especially along the Istrian and Dalmatian The cause of the prevalence coasts. of this wind is the sudden increase in barometric pressure which takes place over the plateaux of Europe in winter, thus sending the cold air into hat there appears to be no justifica-the valleys and over the Adriatic Sea, tion for such use. It also occurs in the neighbourhood of Novorossiysk on the Black Sea, and is precisely similar in character to the mistral which is found along the French Mediterranean littoral. It sometimes lasts for over a week continuously.

Bora, Catharine de (1499-1552), the wife of Luther, was the daughter of a Ger. gentleman who placed her in the convent of Nimptschen, near Grimma. Under the influence of the doctrines, of the Reformation, she fled with eight of her companions in 1523. Luther placed them in honourable families and took upon himself the ask of getting them advantageously

rine. This was in the period of his poverty, when his circumstances were disadvantageous, but Catharine proved a true helpmeet in trouble. She survived the death of her husband by several years, and removed from Wittenberg to Leipzig, where she was compelled by lack of means to take in boarders for her living. She afterwards returned to Wittenberg, but removed from there because of the plague, and in going to Torgan suffered an accident on the road, from the effects of which she died.

Bora-Bora, or Bola-bola, is an is. in the group called Society Islands. situated in the Pacific Ocean in about 151° W. long. and 18° S. lat. It rises to a height of 2165 ft. Pop. 800. Pop. 800.

Boracic Acid. or Boric Acid. H₂BO₃, a crystalline substance, found native in the volcanic lagoous of Tuscany. B. A. is also contained in the vapours which are exuded from fis-sures in the rocks of the same district. The gases are brought into contact with water, which dissolves the B. A. when heated and is afterwards evaporated to recover the crystals. B. A. is soluble in hot water and alcohol, and is of great use as an antiseptic, as it kills micro-organisms without affecting living tissue. It is usually employed in the form of an ointment. being an excellent remedy for the aphthous condition of the mouth in infants. It is also used for ulcerated nipples and as a dressing in surgery. The aqueous solution is effective in cleansing the scalp of scurf, and absorbed in stockings checks excessive perspiration in the legs.

Borage (Borago officinalis), a herb with rough stem and small blue flowers. It is cultivated as a garden flower in the United Kingdom and is occasionally found wild. It is used as an ingredient in claret-cup, probably owing to a supposed cooling property. In former times it was esteemed as a household remedy for slight fevers.

Boraginacem, a large order of dico-tyledons native to tropical and temperate climates, consisting chiefly of herbs, but occasionally of shrubs and trees. The flowers are hermaphrodite, regular and hypogynous, the calyx has five joined sepals, the corolla five joined petals: there are five stamens. and two superior carpels, generally deeply divided into four lobes with a single style rising between them. The fruit consists of a drupe or four achenes. The species agree in having an insipid juice, and their surface covered with stiff white hairs, whence the name asperfolia, or rough-leaved, sometimes given to them.

species yield a purplish dye, e.g., Report of the Sixth International tincloria. Lithospermum Anchusa tinctorium, and some kinds of Onosma. Boras, a vil. of Sweden, situated

50 m. from Wenersborg. Pop. 3110.

Borassus flabellifer, the Palmyra palm, is a single species of its genus; it belongs to the order Palmæ, and grows all over India and in tropical Africa. It grows to a height of 20 to 10 ft., has fan-shaped leaves about 4 ft. long on an elongated stalk, and a fruit about the size of a child's head. Its uses are innumerable, e.g. the leaves form an excellent thatch, and are used as writing-tablets, and woven into baskets and mats, the inflorescence when wounded yields sugar, the fruit is edible when roasted, and the wood is hard and durable.

Borax, sodium biborate, Na, B,O, a substance found in nature in the form of monoclinic crystals, white or greyish in colour, transparent or translucent, with a hardness of 2 to 21 and a specific gravity of 1.7. B. was known in very early times as being extracted, under the name of lineal, from the salt lakes of Tilet. It is also found in California and Nevada, and in the desert of Atacama in S. America. It is manufactured from boric acid, which is fused with half its weight of sodium carbonate, the B. being dissolved out with warm water. On being fused B. forms a globule. It combines on fusing with the oxides of many metals, forming globules of characteristic colours, therefore providing a test for the detection of certain metals. B. is also used in the glazing of pottery and in glass-

Borbeck, a vil. in the Rhine prov. of Dusseldorf dist., Prussia, 3 m. N.W. by W. of Essen. Coal is found

in the vicinity. Pop. 5000.

Borborus is a genus of dipterous insects of the family Borboride. The | species are small, dark flies, with wings either clear or absent. They are found in marshy places and on putrid substances, and are always abundant about cucumber frames.

Borchgrevink Carsten Egeberg (b. 1861), a Norwegian explorer, was born at Christiania, and emigrated in When the his youth to Australia. Melbourne Antarctic sailed from under Captain Christensen, B. shipped as an ordinary seaman, seeing no other means of going, and was one

Geographical Congress, London (1895. 169-175); and First on the pp. Antarctic Continent (1901).

Borda, Jean Charles (1733-99), a mathematician and physicist, served in both the army and the navy and distinguished himself by the introduction of new methods and instruments connected with the sciences of navigation, astronomy, and geodesy. invented an instrument measuring angles with great accuracy, one for measuring the inclination of the compass-needle, and many others; his most important invention was that of the reflecting-circle. He was one of the men of science who framed the new system of weights and measures adopted in France under the Republican gov. He pub. Description and Use of Circle of Reflection, 1778, and Table of Logarithms, 1804.

Bordarii (from Lat. borda, a cottage), or cottarii, were tenants under the feudal system, who, in return for menial services, chiefly field labour, possessed holdings of from one to five acres. They had neither oxen nor plough and were inferior in rank to the villeins, though they were certainly not slaves.

Borde. Andrew. BOORDE. 8ee ANDREW.

Bordeaux, a city in the S.W. of France, the cap. of the dept. of Gironde, on the l. b. of the Garonne, 358 m. S.S.W. of Paris. The suburb of La Bastide, which lies on the opposite side of the riv., is connected with B, by a modern stone bridge of seven arches, and a railway bridge. It is one of the first industrial cities of France, and one of the foremost in the cultivation of arts and sciences. The old part of the tn. is distinguished by narrow, crooked streets, but the new quarters are very fine. Among the public squares may be mentioned the Place de la Quinconce, which is ornamented by huge statues of Montaigne and Montesquieu. The public buildings include the old cathedral of St. André, with a detached bell-tower. the church of St. Michel, the theatre, which is one of the finest in Europe. the hôtel de ville, etc. Some of the old gates of the city are still preserved. The university has 2000 students, the public institutions are of a high order, and there is a fine picture gallery. B. of the first men to set foot on the is the third port of France both in Antarctic continent. He made notes foreign and coastwise trade, being of the voyage, and pub. them on his surpassed only by Marseilles and return. In 1898 he was placed in Havre. The harbour is capable of command of Sir George Newnes' accommodating 1000 ships of all return. In 1898 he was placed in Havre. The harbour is capable of command of Sir George Newnes' accommodating 1000 ships of all Southern Cross expedition, and in sizes, and ships of 600 tons can enter 1902 investigated the volcanic distat all tides. An additional port has turbances in the W. Indies. See the been built at Balacan. Shipbuilding is a very important industry, whilst secrets in connection with the plans the wines of B. have been noted since the 4th century. The chief manufs. are liqueurs, vinegar, tobacco, sugar, etc. The chief exports comprise wines, fish, fruits, jewellery, chemicals, and glass: the chief imports salt fish, iron, coal, pottery, and machinery. B. was the Burdigala of the Roms., the cap. of Aquitania Secunda. It was repeatedly sacked in early times, but had a peaceful time under the Eng. from 1152 to 1453. It is the seat of an archbishop. Pop. 275,000.

Bordelais was formerly a div. of France, bounded on the N. by La Saintonge; on the E. by Perigord Bazadais, on the W.

It was principally an ecclesiastical division, having Bordeaux as its chief town.

Borden, Sir Frederick William (b. 1847), Canadian statesman, born at Cornwallis, Nova Scotia. He was educated at King's College, Windsor, and afterwards studied at the Harvard He began Medical School, Boston. practice at Canning in 1868. In 1874 he was elected Liberal member of the parliament of the dominion of Canada, and from 1896-1911 was Minister of the Militia.

Borden, Robert Laird (b. 1854), Canadian statesman and lawyer. Succeeded Sir Wilfrid Laurier after his defeat on the Reciprocity Bill at the General Election in 1911. He was born at Grand Pre, Nova Scotia. In 1878 he was called to the bar and practised in Halifax, becoming even-tually president of the Nova Scotia Barristers' Society. In 1896 he represented Halifax in parliament, but lost his seat in 1904 and was elected for Calreton. was returned for both places, and since 1901 has been the leader of the Consevative opposition. He has made several tours in Canada, and in 1999 was touring in Europe and the United Kingdom. Responsible for Canada's offer, in 1912, of three Dreadnought battleships for the home country.

Bordentown, a bor. in New Jersey. U.S., situated on the Delaware, in the co. of Burlington. It is 28 m. by rail or water from Philadelphia, and 6 m. by rail from Trenton It is noted for its iron works and shipbuilding yards. There are also large shirt factories. Pop. 4255.

Bordereau, a French word which means a detailed bill, an invoice of goods, a lading bill, memorandum, use from the bordereau which figured prominently in the celebrated Dreyfus affair of 1894. Dreyfus was con-demned on the evidence of this even at this early date we can regard document, which revealed military the B. as a dist, with a distinct history

of forts, instructions, etc. In 1899 Count Esterhazy confessed to the authorship in the London Chronicle. For further particulars see DREYFUS AFFAIR.

Borders, The, the name applied to that stretch of country on both sides of the frontier between England and Scotland. The term has three distinct uses, and can be applied historically, geographically, and in a literary sense. The actual boundary between the two countries is a line beginning about 3 m. W. of Berwick, along the line of the Tweed to the Cheviot Hills, which become for some 35 m. the line of demarcation; hence the boundary continues along the line of the Liddel and the Esk for a short distance, and thence to the line of the Sark, which it follows to the Solway Firth. The actual length of the boundary line is 108 m., whilst by taking the distance as the crow flies the distance is not more than 70 m. At the extreme E. of this line is the ter. known as the 'Liberties' of Berwick, an area of about 'See my which engless the about 8 sq. m. which encloses the present tn. of Berwick. The only Eng. B. counties are Northumberland and Cumberland, but on the Scottish side, in addition to the actual B. counties of Berwick, Roxburgh, and Dumfries, there is included in the term also the counties of Selkirk and Peobles, which havealwayshistorically been included. The country on the Eng. side of the B. is chiefly bleak and rugged moorland, useful alone for the pasturage of sheep and cattle, but on the northern side the physical appearance presents a vast difference. Here one finds great stretches of fertile land, a n 1904 and was elected country of dales and valles, possess-In 1908, however, he ing a natural beauty and famous for for both places, and its picturesqueness. The B. country is watered on the northern side by the Tweed, the Whiteadder, Leet, Kale, Jed, Kershope, Liddel, Esk, and Sark, whilst on the Eng. side we find the orthern the side will be seen to be seen and the second the s there the rivs. Till, Boumont, Coquet, Rede, and the North Tyne. tory of the B. was for some 1500 years extremely stormy. Nor from the natural position of this ter. can we expect that it should have been otherwise. During the Rom. occupation the original index. tion the original inhab, and the Picts of still further N. were held in check by the Roman walls. The earliest inhab. seem to have been the Brigantes. who held both sides of the B., and were a fierce and warlike tribe. They probably gave considerable trouble to It is best known in its English the Roms., but eventually the Roms.

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was never really conquered, and never really held by the Roms. The evacuation of Britain by the Roms. resulted in the B. country becoming the battle ground for the invaders from the N. (the Picts), the invaders from over the (the Picts), the invaders from over the sea (the Angles), and the hapless Britons, until finally the whole of the B. country is divided up into the kingdoms of Strathelyde, Bernicia, and Deira. Bernicia and Deira were later united to form the kingdom of Northumbria, a kingdom which Northumbria, a kingdom which stretched from the Humber to the Forth. But this div. brought with it no peace. The country continued to be agitated by the constant warfare between Scot and Angle, and later the Viking, seeking lands for himself, joined in the struggle. The history of the B. between the 6th and the 11th centuries is the history of continual warfare, frequent raids, and much bloodshed. The struggle, which had its origin in the petty quarrels of more or less petty tribes, began, with the development of the tribes into nations, to assume a national aspect. The struggle was now one for the permanent possession of the valley of the Tweed, and we must bear in mind that the ter. of Northumbria for a long time stretched to the Forth. Finally, the line of Scottish kings sprung from the Dalriadan, Malcolm Canmore, snatched Lothian from the hands of the Eng., and laid hands also upon Cumberland, which, though nominally ceded to the Norman kings in the reign of the Red William, was nevertheless a constant bone of contention between the two nations for some very considerable time. The constant warfare and struggles hardly, permitted the possibility of a proper development of the country; however, this development had to a very large extent gone on, especially on the Scottish side. The Celtic church had been responsible for this to a very large extent. With the coming of the Celtic monks churches had sprung up in the wilds of Northumberland, and in the fertile valleys and dales of the Scottish lands. Monastery and church dotted the country side, and on the Scottish side grew up the large and flourishing this of Berwick, Jedburgh, and Roxburgh. But the death of Alexander III, in 1286 plunged Scotters of the state of th land and England into the war of the succession, and the determined efforts of Edward I. to achieve his dream of a united Great Britain made the B. the battlefield of the two countries. The country was harried and ransacked by both sides; the destruction of Berwick was compensated for by the ravages of Wallace in the neigh-

of its own, since the land between the bourhood of Hexham. Northumbertwo walls (Hadrian's and Antoninus's) land was practically laid waste, the tns. of Roxburgh and Jedburgh fell into the general ruin, and from that time to the Union (1603) the B. can be said never to have been at peace. Many said never to have been at peace. Many battles took place here, amongst the more important of which may be mentioned Halidon Hill (1333), Otterburn (1388), Nisbet (1402), Homildon (1402), Hedgeley Moor (1464), Flodden (1513), Solway Moss (1542), and Ancrum Moor (1544)—these in addition to the many battles and skirmishes which took place between the B families, and which partook the B. families, and which partook more of the character of family feuds. The important defeat of Montrose at Philiphaugh by General Leslie also belongs to the history of the B. The B. were kept in peace more or less by the building of numerous castles, which were to overawe the moss-troopers and the freebooters of the neighbourhood. The B. were during the 15th and 16th centuries administered by wardens appointed respec-tively by the sovereigns of England and Scotland, the B. at this time being divided into three marches, over each of which ruled practically as sovereigns the Eng. and Scottish wardens. With the accession of wardens. With the accession of James I. (1603) peace on the B. became more possible. James I. even desired to do away with the name B., but the term has always been kept. The castles, however, were dismantled, the garrisons reduced, and gradually the B. became accustomed to peace. to peace. A number of fortresses important in B. warfare, remain as pleasant little tns. at the present day, but a number are in ruins.

Such a state of society and the incidents of the peculiar life which the inhab. of such ter. led, found, as was only natural, an outlet in a peculiar literature—a literature which is magnificently unique. The B. ballads sang the deeds of the B. heroes, the men, the breath of whose nostrils was the breath of battle, the heroes who led their little bands of followers to attempt deeds which a larger army would not have dared to attempt. The ballad of Chevy Chase is typical . of the B. minstrelsy, rescued more or less from oblivion by Sir Walter Scott. But the open life of the Borderer found expression also in the more sentimental side of literature, and the beauties of his native hill and dale did not escape him; he sings of the beauty of his native heath with the same splendour of imagination and with the same poetic spell around him, as he does the deeds of his forbears. Sir Walter Scott rescued the ballad poety, and the traditions of the B. literature find magnificent expression

ing the person of an absconding English debtor.

Bordighera, a popular It. winter sort. It is situated in Porto resort. Maurizio, Liguria, and has a commanding position on the summit of hills from 600 to 1000 ft. high, overlooking the Mediterranean Sea. Quite a distinct part of it is known as the Visitors' Tn., and here are sev. hotels. etc., and an Anglican church. Great quantities of lemons, flowers, palms, etc., are exported. Rom. remains are found in the vicinity. Pop. 3896.

Bordj-bon-Arreridj, a town in Algeria, situated in the dept. of Constantine, on the high plateau of Madjana. Cattle are reared, and grain is grown in the district. Pop. 8000.

Bordj-Menaiel, a town of Algeria, in the dept. of Algiers and the dist. of Tizi-buzon; pop. 14,000.

of Tizi-ouzon; pop. 14,000.

Bordone, Paris (1500-71), an It.
painter of the Venetian school, was a
pupil of Titian, and worked in Venice,
Trevizo, Augsburg, and France. He
was the fashionable portrait-painter
of Venice, and in 1538 was invited to
France by Francis I., whose portrait
he painted. He painted the portraits
cless of many ledge of the court. also of many ladies of the court, of the Duc de Guise, and of many noblemen. He had exceptional talent, and is noted for his fine flesh tones. works are found in Cremona, Milan, works are found in Cremona, Milan, Genoa, Florence, etc. His most celebrated picture, 'The Fisherman giving St. Mark's Ring to the Doge,' is in Venice Academy. In this country we have his 'Daphnis and Chloe' and 'Portrait of a Lady 'in the National Gallery, whilst his 'Lady at her Toilet' is at Edinburgh.

Bordung in Landdry is a horder

Bordure, in heraldry, is a border which surrour

ally occupies sometimes use

a cadet, and the differencing of cadets by Bs according to fixed rules is still done in Scottish heraldry. A B. com-ponée, that is, divided into sixteen small squares, denotes illegitimacy in actional and a serial states are same significance. A great variety is found in Bs.; they are engrailed, invected, wavy, and parted in many ways. A chief is sometimes carried over a B., but not when a mark of cadency. When a coat bearing a B. is impaled with coatbear Scotland; a B. wavy in England had ing a B. is impaled with another B. the B. is omitted along the line of impalement.

in James Hogg (the Ettrick Shepher) Bore, or Eagre, is a name which is herd), John Wilson (Christopher) used to designate a phenomenon which occurs in some rivs. in springherd), John Mackay Wilson.
Border Town, a small post tn. of
S. Australia, situated in the co. of
Buckingham, about 180 m. S.E. by
S. from Adelaide.

Wilson.

Warrant, an old form of greater than the riv. can receive whenout being disturbed greatly. The
height of the B. varies from three ft,
to twelve ft. The latter height is
attained by the B. of the Brahmaputra. Other high Bs. are found in
the Hay-choo-foo, and in some rivs. of Brazil. In England Bs. may be observed in the Seyern, the Trent, the Wye, and the Solway.

Bore (in fire-arms), see Guns. Boreas, Gk. for the N.E. wind blowing towards Hellas from the Thracian mts. It is personified in mythology as the son of Astreus and of Aurora, and as brother of Notus, Zephyrus, and Hesperus. He was He was said to dwell in the cave of a Thracian Haemus. He had a temple in Athens because he destroyed the Persian fleet of Xerxes.

Borecole, or Brassica acceptala, is derived from B. oleracea, the cabbage, a cruciferous plant largely grown in Europe. It has curly leaves, and is valued as a winter vegetable for culinary use. It is also known as Scotch kail, curley greens, Ger. greens, and cow-cabbage.

Borel, Petrus (1809-59), a French writer, was born of a fairly wealthy French family, who had been ruined by the Revolution. He was educated in Paris, and was intended to be an architect. He, however, soon gave up any attempt at making a living by architecture, and became a writer. He was one of the most devoted fol-lowers of the Romantic school. He did not, however, prove a financial success as a writer, but a small appointment in the Civil Service placed him beyond want. His chief works are: Rhapsodies, 1832; Madam

Poliphar, 1839.
Borelli, Giovanni Alfonso (1608-79),
a distinguished Italian physicist and He was born at mathematician. Naples, and in 1649 became professor of mathematics at the university of Messina and later of Pisa. turned to Messina later, but having taken part in some political affair was forced to retire to Rome, where he lived under the protection of Christina, Queen of Sweden. He was the first to surgest the parabolic path of comets, and he was the founder of the ratio mathematical school, since he attempted to explain the movements of the body on mechanical principles. He wrote works on mathematical, medical, and astronomical subjects.

Borers are beetles which pierce the tains a very fine collection of pictures, wood on which they feed and thus do much damage. There are many

species contributed by such genera as

Anobium and Ptinus.

Borers

Boreus, a genus of Mecapterous insects included in the family Panorpide, and related to the scorpion-flies. They have biting mandibles B. hiemand the wings are absent. alis is a native of Europe and America, and is found in the winter months only. It is about one quarter of an inch long, and of a greenish

colour with reddish legs. Borga, or Borgo, a Russian tn. and scaport in the prov. of Nyland, Fin-land, situated on the R. Borgo, at the spot where it enters a part of the Gulf of Finland. It is about 34 m. N.E. by rail from Helsingfors. The trade is greatly impeded by the shallowness of the bay. Leather and furs are the chief articles of commerce, and there are also manufs, of sail-cloth and tobacco. Here, in 1802, the Chamber of Deputies drew up the Constitution of Finland. In 1809 it was the seat of the Finnish Diet. At one time it was a rich and handsome city, but now it is decayed.

Borger, a tn. and com. in Holland. situated in the prov. of Drenthe, and about 11 m. S.E. by E. from Assen. Borgerhout, a Belgian tn. in the

Its manufs. are prov. of Antwerp. tobacco, candles, and tapestry. There are bleaching and dye works. 40,150.

Borghese, the name of a celebrated Italian family of Sienese origin, who are first prominent in the history of the republic of Siena at the beginning of the 13th century. One of their number settled in Rome during the 16th century, and the son of this member of the family became pope, with the title of Paul V., in 1605. The with the title of Paul V., in 1605. The family fortunes were much advanced residence at Rome of the Borghesi by the pope, who created a nephow till 1902, outside Porta del Popolo. Prince of Vivero, and a little later the Built by Cardinal Scipio Caffarelli-Prince of Vivero, and a little later the title of Prince of Sulmona was conferred on the same nephew by the King of Spain. The son of this prince raised the family fortunes to a still higher pitch by his marriage with a daughter of the Aldobrandin family, one of the oldest and richest families of Rome. Camillo Filippo Ludovico. Prince B., married the sister of the Emperor Napoleon in 1803. He was Emperor Napoleon in 1803. He was pictures was formed later. Among made Duke of Guastalla, and later the treasures contained are Algarde's governor of the provinces of Piedrosures of his house to Napoleon for a great sum. After the fall from the property of the It. state, 1902. power of Napoleon he retired to Pilorence, where he lived until his and Italian savant, born at Savignano, death in 1832. The B. Palace at Rome is one of the most magnificent gious student of the documents of the buildings of that city. It con-medieval times, and through his

and is now the property of the Italian government.

Borghese, Giovanni Ventura (1640-1708), It. painter, pupil of Pictro da Cortona, whom he helped in some of his chief works at Rome. After his master's death B. completed some of his unfinished paintings. In the church of San Niccolò da Tolentino are his pictures. 'The Annunciation' and 'The Virgin Mary crowned by Angels.' Four scenes from the life of S. Catherine in the church of Città di Castello are considered his finest See Burckhardt's Art Guide

to Painting in Italy.

works.

Borghese Palace, one of the most magnificent buildings in Rome, in the Borghese Square tn. residence of the Borghesi. Built between 1590 and 1607 by Martino Lunghi and Flaminio Ponzio, and known, from its shape, as 'Il Cembalo.' The inner court has two tiers of granite colonnades, with Doric columns below and Corinthian above. In it are huge ancient statues of Sabina, Julia, and Ceres. wonderful collection of art treasures wonderful collection of art treasures was sold by public auction, 1892, by Prince Paolo Borghese. Many of its fine pictures have been removed to the Villa Borghese (now Villa Umberto I.), belonging to the It. state. Pope Leo XIII, acquired the important family archives for the Vatican. The picture-gallery still includes a 'Madonna' of Botticelli, and one by Lorenzo di Credi; two 'Evangelista' by Michael Angelo; four paintings of Raphael (one being 'The Burial of Raphael (one being 'The Burial of Jesus'); Titian's 'Sacred and Profana Love,' and his 'Three Graces; 'Correggio's 'Danaë; 'Van Dyck's 'Christ on the Cross' and portrait of 'Maria de' Medici.' There are also canvases of Andrea del Sarto.

Borghese on the Cenci estate, after plans by Giovanni Vansanzio (early 17th century). It has a magnificent park of over 200 ac. Its grand collection of works of art was sold to Napoleon by Prince Camillo Borghese, 1806. Some of these were restored 1815, the remainder are in the Louvre. new collection of sculptures and pictures was formed later. Among

of the buildings of that city. It con- medieval times, and through

documents, and turned to numismatics. He was responsible for the He estab. a vast reputation by his great work, Nuovi Frammenti dei Fasti Consolari Capitolini, 1820. His works on numismatics also added greatly to his reputation. His complete works were pub. by order of the Emperor Napoleon III., the first vol. appearing in 1862, and the 10th and last in 1897.

Borghesi, Ippolito, Italian painter, native of Naples (fl. towards end of 16th or beginning of 17th century), punil of Francesco Curia. Painted historical and religious subjects: Raphael and Andrea del imitated Sarto. Chief works: Altar-piece in chapel of Monte di Pietà at Naples Assumption of the Virgin'), and another in San Lorenzo at Perugia.

Borghetto, an It. vil. in the prov. of Verona, situated on the banks of the R. Mincio. It was the scene of a victory of Bonaparte, over the Austrian general, Beaulieu, in 1796. Pop.

500. Borghorst, a vil. in the German prov. of Westphalia, situated 13½ m. N.W. of Münster. It has manufs. of

cotton goods. Pop. 4000.

Borgia, a family originally from Jabiya in the prov. of Valencia, Spain. The name figures among the Caballeros de la Conquista at the One of its members, Alfonso de Borja (1378-1458), was a bishop although the people whom he gov-and private secretary to Alfonso of Aragon, and accompanied that mon-arch to Naples. This Borja afterwards became pope as Alexander III. and settled a number of his family in Italy. His nephew, Rodrigo de Borja (1431-1503), also became pope under title of Alexander VI., and from that time the prin. seat of the family was in Italy, and the name was changed to B. Before Alexander became pope he had a nun Rom.girl, who

but whose rea Cantanei. Lucrezia and

to play important parts, and acquired

unhappy renown.

Cesare Borgia, born in April 1476. He possessed unbounded ambition, never-flagging energy, a contempt for all laws, divine or human, extra-ordinary powers of generalship and administration. A league of all Italy situated in the S.E. of Louisiana. It is and of most of the powerful European about 25 m. wide, and touches the sovereigns was required to check Gulf of Mexico on the cast,

study of these, so ruined his eyesight Cesare's rash projects. From birth that he had to give up his study of he was vowed to the priesthood, and he became a cardinal when only seventeen years old. He early resolved to arranging and cataloguing of the College He shrank neither from sacrange of the Vatican. He retired from Rome In 1821 to San Marino, where he spent In 1821 to San Marino, where he spent In Include the Included He Included Duke of Gandia, whom he afterwards succeeded as post general of the Church. Whilst his father, Alexander III., was crushing the feudal power of the barons in the Romagna, Cesare undertook the task of recovering all the fiefs along the Adriatic coast which had ceased to acknowledge the overlordship of the Holy See. He made himself master of the Romagna. Perugina, Siera, Piombino, the duchy of Urbino. He was named Duke of Romagna by the pope, and was about to invade Bologna when he and his father were suddenly taken ill while at a banquet given by the Cardinal of Correto. Alexander died, but Cesure, owing to his strong constitution, re-covered. There, however, was an end of his projects. On the election of his enemy Pius III. to the papal scat Cesare surrendered at Naples. was removed to Valencia and later to Medina del Campa. He escaped from the latter place and went to the court of Navarre, where he was placed in command of the royal forces. He was sent against Louis de Beaumonte, Constable of Navarre, and on the latter refusing to surrender the city, Cesare made unsuccessful attempts to take it. During one of these attempts he was mortally wounded and Caballeros de la Conquista at the died in 1507. He was a friend of art, time of the expulsion of the Moors in and befriended Leonardo da Vinci. His memory remains in execration, although the people whom he gov-

an

up by a fisherman in Naples. When quite young a paper was given him from his mother announcing that he was of noble birth but conceating his real name. On hearing of Lucrezia's wicked deeds he struck off the 'B from the escutcheon of the duke's palace. His mother saved him from death. Soon afterwards at Lucrezia's instigation a banquet was given to which Gennaro and his friends were invited. The wine was poisoned, and Lucrezia arrested all the guests. Gennaro died after hearing that he was son of Lucrezia. The latter no sooner saw her son dead then she died too.

Borgne, a lake in the U.S.A.,

Borgo is the name given to a leads from the S.W. of Bukowinato number of tns. and vils. in Italy and to Bistritz.

the Southern Tyrol. It indicates the growth of a tn. or vil. around a situated 36 m. to the S.W. of Parma.

castle or castellated rock, the original

Borgo. E.g.-

Borgo san Donnino, a walled the in the prove of Parma, Italy, situated on the Stura, a tributary of the Po, 15 m. W. of Parma It has a fine cathedral built in 15th century in the Lombard style. Hemp and silk spin-ning are carried on, and also glass manuf. It was the scene of the martyrdom of St. Domninus in 304. During the Hohenstauffen dynasty it became an imperial possession, and in 1501 the seat of a bishop. Pop. 10,855.

Borgo san Sepolchro, a town and episcopal see in prov. of Arezzo in Tuscany, 29 m. N.E. of Arezzo on R. Tiber. It is at the foot of Monte Maggiore and is still surrounded by the mediæval tn. walls. Bp. of Piero della Francesca and Raifaello dal

Colle. Pop. 3700.

Borgognone, Ambrogio (d. c. 1524), an It. painter of the late 15th and carly 16th centuries. He was a conearly 16th centuries. He was a con-temporary of the celebrated Leonardo da Vinci, his real name being Am-brogio Stefano da Fossano. The name B. is probably due to the fact that he was closely associated with the Burgundian school of art. His chief claim to fame lies in the work of decoration which he for the Certosa, the convent of the Carthusians at Pavia. After his return from Pavia to Milan he continued his work of church decoration, and we find him at a later date painting a series of frescoes for one of the great churches of the town. He is not very well known as a painter, and references to him are very scarce. Two examples of his work at the Certosa are in the National Gallery.

Borgognone, Jacopo Cortesi (1621-76), It. painter, born at St. Hippolite, Burgundy, the son of a minor artist, in whose studio he worked for some years, later entering the army, and finally settling in Florence, being patronised by Prince Mathias of that city. Many of his most famous battlepictures record the achievements of this patron, and his best work is in the Palazzo Pitti at Florence. He also produced sev. sacred paintings. spent the last part of his life in a Jesuit monastery, being driven there by a rumour that he had poisoned his wife.

Borgomanero, a small tn. situated In Northern Italy. It is about 22 m. N.W. by N. from Novara by rail.

Borgo Pass is a pass in Austria-Hungary of 4000 ft. in alt., which soil augers on the principle of the car-

Pop. 2500.

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Borgu, an extensive dist. in Africa forming part of the kingdom of Gando in Nigeria, bordered by the Niger, Dahomey, Yoruba, and Gurma. Its surface is, on the whole, level, but there are lofty mts. in the N. Corn. limes, plantains, and vams Great numbers of cattle are grown. The dist. is divided into s states, and Kiama and bred. numerous states, and Kiama and Wawa are among the chief cities. It is under the gov. of the King of Bussa, and the inhab. are chiefly Baribas. Bussa is its chief tn. The country is very hilly, especially in the N., but the land is fertile, and thickly peopled.

Boric Acid, see BORACIC ACID. Boring, the operation by which a hole of small diameter is made in any direction, usually vertically downwards, through earth, rock, etc. In most instances the object of B. is to procure knowledge of the kind, disposition, and depth of the rocks below the surface. The aim may be purely scientific, as at Leipzig, where a hole 6265 ft. in depth was bored for the purpose of ascertaining the depth and succession of the underlying strata, thus amplifying knowledge secured from examination of faults, outcrops. etc. More often, B. has for its object. the acquirement of knowledge economic value, as in prospecting for minerals. In an area where the existence of beds of minerals is suspected, holes are bored at various points. An indication of the disposition of mineral beds is thus given, and if the number of Bs. be sufficient, a fairly reliable map can be drawn. Even after the existence of minerals in paying quantity is proved, it is necessary to ascertain the nature of the overlying strata, so that the difficulties of sinking shafts can be esti-mated. It may be said that B. is always a necessary preliminary to mining operations, as it is for civil engineering work, involving extensive excavation or requiring foundations of particular stability. The nore-hole often Lecomes a permanent well in cases where water or oil rises from the lower strata by its own pressure. (See ARTESIAN WELL and PETRO-LEUM.) Certain salt-beds are most economically worked by introducing water through the bore-hole for the purpose of dissolving the salt, and then pumping the brine to the surface. The apparatus required for B. depends upon the nature of the rock and the depth to which the hole extends. For shallow B. through soft

penter's auger are employed. The tool is mounted on jointed rods; the earth is enclosed by the spiral, brought to the surface and removed. are also used which on turning enclose the earth in a metal pod or cylinder. In working on hard rock, drive-pipes are used. These consist of jointed tubes, the lowermost carrying a sharp steel circular cutting edge, and the uppermost for the time being having a screwed-on surface for hammering. For deeper B. a drill is used. This is mounted on jointed rods and operates by percussion and rotation, the rods being slightly turned at each blow. When the weight of the rods becomes considerable, a wooden spring-beam is often used. This consists of a pole about 30 ft. long and tapering to about 6 in. at the small end. The butt is fixed by means of a heap of stones, and it has another support about 10 ft. from the fixed end. allows a springing up-and-down movement which is communicated to the rods and minimises the labour of the men. The tool is also fitted with a sliding link, as too great rigidity would involve excessive breakage of the rods. The disadvantage of rods is that much time and labour are required to lift them for the purpose of examining the tool or removing the broken rock. The latter operation is carried out by a 'bailer,' a tube with an inwardly opening valve at the bottom. The tube is dashed up and down a few times and the débris brought to the surface. The work of B. is made less tedious by using ropes instead of rods. The drill is kept dropping by its own weight on the rock, and if it is lift them for the purpose of examining own weight on the rock, and if it is necessary to raise the tool, the winding up of the rope is not a lengthy operation. Lost tools and broken rods have to be fished for by special apparatus. The most elaborate and efficient B. apparatus comprises a diamond drill at the end of a series of jointed tubes. The drill consists of a bit of soft steel set with about eight diamonds of about two carats each. The drill is rotated by an engine geared so that the drill is advanced slightly at each revolution. rocky core may be lifted for examination, and a stream of water forced

Foster. Boris, Fedorovich Godunov (1551-

1605), Czar of Muscovy, was the most famous member of a Tartar family namous member of a fartar mainly now extinct. In his youth he was at the court of Ivan the Terrible, and in 1571 he married Maria, the daughter of Ivan's favourite, Malyata Skurator. He was raised to the rank of boyar

The on the marriage of his sister to the Tzarovitch Theodore. When Theodore succeeded to the throne in 1584, B. was appointed guardian, with Nikila Romanovitch. A rebellion in favour of the younger son of the Czar, Demetrius, was frustrated by B., and on the occasion of Theodore's coronation the former was loaded with The death in 1584 of his honours. co-guardian left B. the most powerful personage in the kingdom. A con-spiracy against him of the most prominent nobles, jealous of his success, was an utter failure, and only enhanced his power. From this time onwards B. was the ruler of Russia, and the direction of all affairs was in his hands. His general policy was always in favour of peace, and he showed great judgment in his attitude towards foreign powers. He encouraged Eng. morehants by exempting them from tolls, and maintained an independent attitude to-wards Turkey. He created the first Russian patriarchate at Moscow. thus giving autonomy to the Russian Church; and he fortified numbers of tus. on the N.E. and S.E. borders, to check the depredations of the Finnic and Tartar tribes. The 'ukaz' of 1587 forbade the peasants to change their masters; its object was to obtain revenue, but its effect was to obtain revenue, but its effect was to render the peasants veritable serfs. On the death of Theodore on Jan. 7, 1598, B. was unanimously elected czar by the Zemsky Sobor. He con-tinued his former policy, and was undoubtedly one of the greatest of Muscovite ears. His chief fault was in Russia,

in Russia, R. Vorona,

Borisov, a dist. and tn. in Russia, 50 m. N.E. of Minsk. Pop. 18,200.
Borisovka, a town in Russia in the growth of Kussla 200.

gov. of Kursk, 30 m. from Byelgorod. There are tanneries and steam mills,

and a trade in corn, leather, etc.

Borja, an ancient town of Spain, situated in the prov. of Saragossa. It has manufs. of soap, woollen materials.

and brandy. B. was the cradle of the Borgia family. Pop. 6500.

Börjesson, Johan (1790-1866), was a Swedish poet and dramatist, whose work may be divided into two distinct categories. In his youth he wrote much lyrical poetry, and may be termed the last of the Phosphorist In 1820 his inspiration appeared to have described him, and he pub. nothing until 1846. In that year he pub. the first and best of his dramas, Erik XIV: this poem is distinguished by its vigour and movement, allied with keen characterisa-tion, but he never again produced

och Tårar hå en Dolters Graf. 1854. Borkum, the name of an is. in the N. Sea, belonging to Germany, and in the prov. of Hanover. It is one of the E. Frisian group, and is situated between the eastern and western arms of the Ems estuary. The is, is about 5 m. long, and half as wide. There is good pasture land for cattle, and numerous seabirds find a breeding place upon it. During the summer months it is very much frequented by visitors, who find that good sea bathing is to be had. Pleasure steamers go there daily from Emden, Hamburg, and other places.

Borlase, William (1695-1772), antiquary; M.A. Exeter College, Oxford. Presented in 1722 to a living near Penzance to which the vicarage of St. Just was added in 1732. He pub. in his Philosophical Transactions an essay on Cornish diamonds, and was made an F.R.S. in 1750. He subsequently produced several works, including Cornish Antiquities (1754). He was made an LL.D. in 1706. He pre-ented collections to the Ash-

molean Museum.

Bormio, a tn. in the valley of the Adda, Sondrio prov., Northern Italy. It is nearly 5000 ft. in alt., and noted for its hot sulphur and saline springs.

Pop. 1975.

Born, Bertrand de, a famous troubadour, was born in Périgord about the year 1140. He was a notable figure in the struggle of King Henry II. of England, and his sons, during the latter part of the 12th century. The latter part of the 12th century. date of his death is unknown, save that it was before 1215. More than forty of his poems have survived. ranging from love songs to biting satires.

Borna, a Ger. tn. on the R. Wirha, 17 m. S.E. by rail from Leipzig. Its manufs, are shoes and boots, and pianoforte felt. There are iron works. and peat cutting forms a big industry.

Ludwig (1786 - 1837). noted German political writer and satirist, was born at Frankfort-on-Main, where his father, Jakob Baruch, carried on a Jewish banking business. He studied medicine at Berlin under a physician named Markus Herz. He fell in love with his patron's wife, Henriette Herz, to whom he addressed numerous letters pub. in 1861. From 1507 he studie I constitutional law and political economy at Heidelberg and Geissen, and took his doctor's degree at the latter university. was made police actuary on his return

anything to equal it. He was chosen to Frankfort in 1811, where he reanything to equal it. He was chosen to Frankfort in 1811, where he remained until 1814. He became a llis dramas include, besides Erik journalist, and edited the Frankfort XIV., Erik XIV's Son, 1847, Liberal newspaper, and the Stautsand Solen Sjunker, 1856; his best ristrettoand Die Zeitschringen. In 1818 testantism, changing his name from Löb Baruch to Ludwig Börne. From 1818-21 he ed. Die Wage, which was suppressed by the police authorities. After the July Revolution in France. 1830, he went to Paris expecting to find the newly constituted state in accordance with his own ideas of freedom. He was, however, disappointed. His views are fully developed in his Briefe aus Paris, in which he reproaches the Ger. people with everykind of vice and folly. He died at Paris of consumption. He was a bitter enemy of Heine. His works. though fragmentary, are remarkable for brilliancy of style, and for a thoroughly Fr. vein of satire. His most important publications Briefe aus Paris, Bornes Briefe an Henriette Herz, Dramaturgische Blät-

Henricate the Heavy Jean Paul.

Borneo, a great island in the Malay Archipelago, is, next to Autralia and Papua, the largest island in the world. It is about five times as large as England and Wales, and larger than the Austrian empire by 30,000 sq. m., having an area of 284,000 sq. m. Its boundaries on the N. and W. are the Gulf of Siam and China Sea: on the E. the Sea of Sulu and Macassar Strait, and on the Sthe Sea of Java. B. is politically divided into four parts, viz. (1) British N. B., having an area of 31,000 sq. m.: (2) Brunei, also a British possession. with an area of 3000 sq. m.; (3) Sarawak, another British possession; and (4) a Dutch possession, B. Of these the most valuable portion is Dutch B. The Dutch possessions have a total area of about 200,000 sq. m. Generally speaking, the country is mountainous, with wide plains and low, marshy shores. There is no distinct nucleus where the int. ranges branch out in different directions. The chief range-are (1) the Kapuss, dividing Dutch B. from Sarawak, and stretching in a westerly direction; (2) the Schwaner Mts., which lie S. of the Kapuas; (3) the Müller chain, between the eastern parts of the Madi plateau and the Kapuas. The Madi plateau is between the Kapuas and Schwaner ranges. There is also a chain running eastward from the central mts., and terminating in the promontory known as Cape Kaior. The coasts, which are low and marshy, are rendered dangerous to navigation by numerous inlets and rocks. There are no deep indentations. The mt. system has not n $\bar{\tau}$

diamonds, quicksilver, platinum, coal, then return to their native country, and lignite have been found in abund. They have endeavoured to live as ance. The mt. framework of the independent republics under chiefs whole is. consists of eruptive and chosen by themselves. crystalline rocks of high antiquity. Denudation by tropical rains has largely been responsible for the corrugated and crinkled appearance of the country in the S. The rivers are numerous, and afford good means of communicating with the interior, some of them being navigable for hundreds of miles. They are useful both as highways and as lines along which run the main arteries of pop. chief rivs. are the Sarawak, Barito, K

a rich, alluvial dist., but its course is impeded by rocks, waterfalls, and rapids. The rivs. of the S. are waters of capacious drainage. The chief drawback of the river system is that, The chief on nearing the coast, many of the streams overflow, and form marshy and unhealthy regions. The intense heat of the tropical region is here n winds, and the

to health, except Almost every wind brings rain, and as the is. lies within the region of the equatorial downpour, the vegetation is of the richest and most luxuriant kind. One of the chief trees is the sago-palm. The chief trade is in sago, bees'-wax, edible birds' nests, camphor, trepang, and tortoise-shell. In exchange, Britain sends cotton goods, hardware, and opium. The cap. of E. Dutch B. is Banjermassin, which is the largest tn. of the is. Pop. 30,000. Elopura, the cap. of British N. B., is situated on a fine harbour. Coal is plentiful in theneighbourhood, and the sago palm, sugar cane, and tobacco plant flourish. Brunei, the cap. of the prov. of Brunei, stands on the riv. of the same name. The riv. is very wide at this point, and the tn. may be said to be literally in the river. Sarawak, or Kuching, is a substantial town with much trade. It has a pop. of 20,000. Pontianak is the cap. of the W. region under Dutch rule. The pop. of B. consists of three classes: (1) or B. consists of three classes: (1) Dayaks or Dyaks, who are the original inhabs.; (2) the Mohammedans or Malays; and (3) the Chinese. The Dayaks live chiefly in the interior, and are employed in tillage, collecting of gutta-percha, gums, gold-dust, and wax. The Malays well on the coasts as traders and bulg sailors. The Chinese chiefly

Borneo Camphor is obtained from a huge tree, native of Sumatra and Borneo. It is deposited in fissures in the wood, and these fissures have to be opened to obtain it, but it can also be obtained by the action of reducing agents.

Bornhem, or Bornheim, is a prov. and a com. of Belgium with a pop. of about 5000. The name is given also to a few small places in Germany.

Bornholm, is an is, belonging to

Denmark, situated about 22 in. S.E. of Sweden, in the Baltic Sca. It is 24 m. long, and 16 wide. Its coast is very rocky, and the interior is hilly, especially in the N., where the cliffs reach a height of nearly 150 ft. The soil is fertile, and flax and hemp are grown, also oats. There are good pasture lands for cattle. Sev. quarries are in the neighbourhood from which are obtained good building stone, marble, and limestone, also a fine porcelain clay is worked. dustries are weaving, the making of clocks and watches, and earthenware. There distilleries are large Rönne is the chief tn., breweries. and there are a few small tns.: Neksö.

Hasie, Svanike, Allinge, and Sandvig. Bornia, a genus of fossil plants, occurs in the coal formation. It be-longs to the Equisetales, and is now included in the genus Archaecela-miles. The best known species is B.

of · is mr accomplished by looking along two or more straight edges or a range of poles set up at regular intervals.

Bornu, a Central African sultanate W. and S. of Lake Chad. It is a flat country with few elevations. The soil is chiefly sterile. The regions adjoining rivers are formed by alluvial deposits and are very fertile. Climate is hot and unhealthy. Chief products are indigo, cotton, and ground nuts. Pop. consists of various tribes, of which the chief are Kaniri, Kanenbo, Tibbi, Musgo, Manga, and Haussa. The cap, is Kuka or Kukua (60,000).

Area 57,000 sq. m. Pop. 5,000,000.

Boro Budor, which means 'The Great Buddha,' are the ruins of a very wonderful Buddhist temple.

situated in the middle of Java. It is to the W. of Surakarta, and close to the junction of the Progo with the Ello. It is estimated to be quite the Malays fivel on the coasts as traders and bold-wilders. The Chinese, chiefly most remarkable and splendid specifrom Canton, have penetrated far men of Buddhist architecture in the into the interior. They engage in trade and mining, and are unwearied brought into Java in very early times, in their efforts to make money, and

Javanese, this temple was built in the that of a place of defence.

Bagration.

Boroglyceride, a mixture of boric

boric acid. It combines directly with fluorine on contact, and with chlorine and bromine on heating. The chloride is a colourless fuming liquid which readily decomposes in the presence of water, and the bromide has much the same properties. The sulphide also can be formed by direct union of the two elements on heating, and is also rapidly decomposed by water.

Bororos, the name of a people of S. America, who were conquered by the Portuguese about the middle of the 17th century. They inhabit the states of Matto Grosso and Goyaz in Brazil, and are, according to some authorities, the parent stock of the Patagonians. They are of very high stature, the average height being about 6 ft. 4 in. Their religious beliefs are of a primitive nature, and their state of civilisation is not very advanced. They compare a man's soul to a bird which flies away temporarily during sleep, returning

on awakening.

Borough. The word B. is derived from Saxon burh, meaning a walled or fortified place, and although the later and modern significations of the word are intimately bound up with associations of self-government, the ancient connotation is essentially

Such 7th century. No inscriptions can be places comprised the fortress-girdled found concerning it, but it has been metropolis of each component king-asserted that its completion would dom of the heptarchy, walled seahave been about 1400. It stands ports, border fortresses, and fortified rather high, and was erected on vol- tuns,' or townships, on the royal canoes. It is a square pyramid, in demesne. The genesis of the burn is circumference at the base, 2050 ft., not to be sought in any Roman and in height about 118 ft. An source, and all the evidence at hand immense cupolo surmounts the build-goes to show that the development ing. There are altogether seven walls, of English Bs. is exclusively related ing. There are altogether seven walls, of English Bs. is exclusively related each very ornamented with statues, to the peculiar conditions of our etc., and they are built like the steps national life. It is true that the up a hill. Upon the outside there are Roman colonice and municipia reveal 400 niches, with a huge statue of in some sort the idea of self-govern-Buddha in each, and between these ment, but the powerful central orare carvings, and bas reliefs, etc.

Borodino, a Russian vil. situated on the Kolotecha R., 70 m. from Moscow. Very near this place a true conception of local government. famous victory was gained over the In Britain, when the great fiefs or Russians by Napoleon's army in 1812. feudal baronies became hereditary. The Russians lost 40,000 out of any local power that might have 121,000 men, and in Napoleon's existed became absorbed in the priviarmy, 32,000 men were lost out of leges of the great barons. Thereafter army, 32,000 men were lost out of leges of the great barons. Thereafter 130,000. The Czar Nicolas I. caused burghal life in England is a slow a monument to be erected on the growth originating in charters of battlefield in memory of the Prince incorporation or grants of liberties. incorporation or grants of liberties. comprising privileges rooted in custom, bought of the overlord at a heavy price in money and developed through the powerful organizations acid with giveerol. heavy price in money and developed Boron, a non-metallic chemical through the powerful organisations element. It occurs in nature in the of merchant and craft gilds. Finally, form of boric acid and its salts. The the term B. becomes almost synony-element when separated appears as a mous with the statutory creation of brown powder, which burns to form the 'municipal B.' denoting a place the trioxide B₂O₂. When heated to which certain wide powers of self-with sulphuric acid, it combines directly with cised through the characteristic hierarchy of mayor, aldermen, and burgesses. Before the Conquest there is hardly any trace of municipal or-ganisation, the king's sheriff, through the medium of the various grades of local moots, or courts, exercising the chief judicial and financial functions. The township, the smallest unit in the political system, consisting merely of a group of allodial landowners and held together by a community of interests, undoubtedly contained the germ of many of our Bs. Others grew out of a collection of such townships. and most of the remainder had their beginnings in the neighbourhood of some castle or under the walls of the monasteries. The chief magistrate of the burk was the town-reeve, or, in ports, the port-reere. The men of the burk met together both for the purposes of commerce and defence. and by a system of mutual pledge-(called frank-pledge) answered for the good behaviour of every man in the burk, the paramount ownership of the great feudal lords being preserved by their power to appoint the recyc and the exaction of an arbitrary tallage. The king's supreme ownership was secured through the jurisdiction of the hundred, from which

the burns soon obtained exemption, toll, soon became the most pre-and the shire-gemot, to which they dominant form of gild, and in many remained more or less subject until the evolution of that body into the county council and county court of to-day. Even before the Conquest a a few big towns had acquired the privilege of compounding for the arbitrary taxes or tallages of the king's sheriff by paying a fixed rent.

After the Conquest, Bs. or towns became divided into those which were included in the royal demesne and those which were held by barons, and commended the stance

thro ng or over char privileges comprised a right of independent juris-

diction, self-assessment, the right to have a hanse, or merchant gild, the free election of reeves, infangenthcof, or local jurisdiction, over thieves, exemption from tolls, and the com-mutation of the profits of fairs and markets and the arbitrary assessments by the sheriff of individual needs by the sherin of intuitivation burgesses (q.v.) for a perpetual fixed rent from the whole B., called the firma burgi. Those contributing to-hold their tenements by burgage the firma burgi were said to hold their tenements by burgage tenure, which tenure still exists, but without its older incidents. By the time of Henry III. most of the large towns had obtained a distinct recognition by the king of their privileges Charters immunities. granted to the 'fully qualified members of the township,' and from having no powers of self-government, Bs. soon became especially adapted through the organisation of the gild system, to the functions of municipal government. Separate jurisdictions, and the obligations of feudal tenures which bound so many of the burgesses to some paramount tenant-in-capite, or great baron, disappear after incorporation, and the substitution of the mayor for the recre heralds the advent of an independent local community. The municipal government of Bs. from and after the grants of incorporation by the Plantagenets was developed partly by the posses-

dominant form of gild, and in many cases became identified with the governing body of the B. When Bs. become recognised by the crown, their bye-laws (burh-laws) acquire a binding force. Later, in the reign of Edward III., the powers of the merchant gilds are absorbed by the craft gilds, or gilds of craftsmen engaged in a particular craft in a particular B., associated for the maintenance of a high standard of excellence in their particular craft. Whether the rise of the craft gilds was due to the oppression of the artisans by the merchant gilds is doubtful, present-day opinion averring that civil quarrels were be-tween burgers and non-burgers, and not between master and artisan. Ultimately the place of the craft gilds is taken by the merchant companies of the 17th century, and the powers of self-government revert to the close corporation of the B. composed of the mayor, aldermen, and councillors. From the middle of the 13th century the general tendency in the development of Bs. is to vest the governing powers in a mayor chosen by the whole body

and aldei

acquired the power to elect the mayor themselves, united themselves into a close corporation, and managed to get charters of incorporation granted to themselves to the exclusion of their fellow burgesses. This restrictive tendency increased, and after the close of the 15th century freemen were excluded by the close corporation from elections, and the corporation assumed the ownership of the B. property and even controlled the election of members of parliament, a power which was found especially useful to the crown. The burgesses in almost every case had no part in the election of the governing body of the B., and the members of the council almost invariably subordinated their duties to their own personal interests. This state of things came to an end with the passing of the Municipal Corporations Act of or incorporation by the Plantagenets are developed partly by the possession of corporate property, but arose the chiefly from the spirit of corporate larger corporations and gave new unity and mutual responsibility that powers of self-government to such permeated the gilds. These gilds (or places, whether parliamentary Bs. or guilds') were voluntary associations designed for the protection of the protecti trade, for religious purposes such as representation, constitutional his-burying the dead and holding annual torians observe that the word B, be-feasts, for mutual protection and comes for a time associated with a keeping the peace, and for social purples for a time associated with a keeping the peace, and for social purples. The merchant gild, the object of which was to regulate trade and which conferred on its members exclusive rights of trading free from the social properties. The merchant gild, the object of which usually returned a member to parliament. Where the B. had no clusive rights of trading free from the social properties with a social properties.

e rotten Bs.,

of B. to its
A B. now means a town or place subject to the Municipal Corporations Act, 1882. The crown still retains the prerogative of incorporating Bs. by royal charter. A B. possesses a common seal and a council consisting of a mayor, aldermen, and councillors. The coun men, and councillors. The councillors are elected by the burgesses, and the mayor and aldermen by the council. The mayor is an ex officio magistrate for the B., and sometimes receives a salary. The mayor serves one year, the councillors one year, and the aldermen three years, one-third of the aldermen retiring annually. Bs. of over 50,000 inhabitants can be turned into administrative counties, and are not then under the power of The Local the county council. The Local Government Act, 1888, converted several of these large Bs. into ad-ministrative counties. Some Bs. have a court of quarter sessions, presided over by a judicial officer called a recorder. A B. is but little controlled by the central government, but the sanction of the Local Government Board is required for loans secured on the B. rates, and the property of the B. may not be alienated without the consent of the crown. A B. possesses wide powers of making by-laws for the good rule and government of the B. and for the suppression of of an urban or rural district council. As to the qualification of a burgess, see BURGESS. The word burgh as used now is appropriated to Scotch Bs. or burrows, as to which see Burghs. Sec also LOCAL GOVERNMENT.

Borough, The, usual term to desig-

an ancient district containing many places of interest. Chief among these is St. Saviour's Cathedral, one of the oldest churches in London, containing the graves of many celebrated Elizabethans, such as Massinger, Beaumont, and Fletcher. Here also is

Bankside.

George Crabbe.

Borough (Burrowe, Borrows), SteBorough (Burrows), SteBorough (Burrows), SteBorough (Burrows), was master of the Edward Bonaren. Borovsk, a tn. of Russia, 49 m fure, with Chancellor as chief pilot. N.N.E. of Kaluga, and a few miles S.

tion that every parliamentary B. Separated by storms from the other must have had a charter at some former time, or was entitled to the privileges of incorporation by prescription (usage). The Reform Act, Scription (usage). The Reform Bs. Moscoula by the Northerne sea passage to St. Nicholas' (Archangel). In a second expedition in the Scrch-thrift, 1556, he discovered Kara Straits between Novaya Zemlya and Vaygach Island. Probably about 1558 he went to Spain, and was the first to propose a translation Cortes' work, known in English as Eden's Arte of Navigation, 1561. B. went on another expedition to Russia in 1560, 'the seventh voyage of the Merchant adventurers to Moscovy (Hakluyt). In 1563 he was chief pilot and one of four masters of the queen's ships in the Medway. Some of his records of his voyages appeared in See Hakluyt's Voyages, Hakluyt. 1582; Navigations, Voyages, etc., 1599, vol. i.; Hamel's England and Russia (Leigh's translation) 1874.

Borough, 1874.

lish navigate Stephen (q.v.). He was an ordinary seaman on the Edward Bonarenture on the first voyage to Russia, 1553. Afterwards he made many voyages to St. Nicholas. Later he transferred his services from the merchant adventurers to the crown, but the actual dates are uncertain. In 1570 B. fought against pirates in the Gulf of Finland. Commanding the Lion, he accompanied Drake in the Cadiz expedition, 1587; but got into trouble for questioning the wisdom of the attack on He commanded the Bona-Lagos. nuisances, besides all the usual powers volia in the Armada fight, 1588. B. is author of Instructions for discouery of Cathay Eastwards for Pct and Jackman, 1580; and of Discourse of the Variation of the Compas, 1581. Some of his charts are preserved at the British Museum and at Hatfield. Consult Barrow's Life, Voyages, etc., nate the borough of Southwark, a part of Drake, 1843; Fox Bourne's English of London to the S. of the Thames, Scamen under the Tudors, 1868; an ancient district containing many Camden Society's Leicester Corre-

spondence, 1844.

Boroughbridge, parish and market tn. in the West Riding of Yorkshire, Ripon div. It is on the Ure, 6 m. S.E. by E. of Ripon on the N.E. railway. Pop. 1000.

Borough-English, a custom in some Borough. The, title of a poem by parts of England by which lands and tenements held in ancient burgage

Borrera and Borreria are names which were given to two genera of plants in honour of the botanist William Borrer. The former genus comprised several lichens, the latter some plants of the order Rubiacee which now bear the generic name Spermacoce. Borreria poaya, a native of Brazil, has blue flowers, and its roots are sometimes substituted for ipecacuanha.

Borromean Islands, a group of four is. on the W. side of Lake Maggiore, off Baveno and Stresa, N. Italy. They are situated in the western arm of the lake, and are named after the ancient family of Borromeo. They were constructed by Count Borromeo (d. 1690), prose and Lat. Among the stories who built terraces and converted the islands into beautiful gardens. The Lancelot of the Lake, and the Holy two most celebrated islands are Isola Grail. These were all put into Fr. Bella and Isola Madre. On the W. verse by other poets of the time, and side of Isola Bella stands a château new translations were made as the of the Borromean family. Isola Madre language altered, but they still bore is the largest, and has long terraces the name of Robert de B. These and an old palace. Isola de Pescatori romances form a part of the Bibliocontains a fishing vil. of about 200 thèque bleue.

fishermen.

Borromeo, Carlo, saint and cardinal of the Roman Catholic Church, son! of Arona, on Lake Maggiore, in 1538. He studied civil and canonical law at Pavia. He took his doctor's degree in 1559. When his uncle became pope, Carlo was made protonotary, created cardinal deacon, and raised to the archbishopric of Milan. He founded an academy of learned; persons, and pub. their memoirs as the Noctes Valicana. On the death of his brother he was advised by his friends to marry so that the family title might not be extinguished on his death. On the death of Pius IV., Carlo began the reformation of his diocese. He made reforms in the services and decorations of the churches, built seminaries, colleges.

of Moscow. In its vicinity is a 15th nophew of St. Carlo B., was made century convent, formerly one of the richest in the world. Pop. 10,191. having been made a cardinal eight years before. During a plague which ravaged the city during his opisco-pate, he proved a worthy emulant of his uncle, and distinguished himself by his piety and self-sacrifice. His noble life is commemorated in Manzoni's I Promessi Sposi (1826). He was the founder of the Ambrosian Library, for which he collected nine thousand manuscripts.

Borron, Robert de, Fr. writer of the 12th century. He collaborated with Hélis de B., who was either his brother or a near relation, both of them being born in England. Henry II. employed them to translate the stories of the Round Table into Fr.

Borrow, George Henry (1803-81), philologist, was born at E. Dereham, Norfolk, where Cowper had been of Gilberto B., Count of Arona, and buried. An account of his early life Mary de Medici, was born at the castle must be gleaned mainly from his of Arona, on Lake Maggiore, in 1538. works, most of which are more or less autobiographical, the chief difficulty being to distinguish where fact ends and romance begins. In Laxengro he tells us that he was of Cornish descent on his father's side, while his mother belonged to a family of Fr. Protestants, who were obliged to leave their country for their faith's sake, and settled, with other Huguenots, in E. Anglia. His father 'adopted the profession of arms, and was sent by the Duke of York to instruct the young civies. His position, however, did not permit the maintenance of two estab lishments, and so his family had to accompany him to very many tas. churches, built seminaries, colleges, Such a system was not favourable to and communities, for the education and solid education, and that of of young persons intended for Holy Orders. Sev. religious orders opposed the property desultory, the longest time being in these property desultory. orders. Sev. religious orders opposed wery desultory, the longest time being him in these reforms, the most spent at Edinburgh, where he became vigorous being that of the Brothers a student at the High School. Humility. A plot to assassinate However, during these changes, he him was formed by this society, and managed to acquire a variety of inhe only escaped death by a miracle. During the plague at Milan in 1576. Ireland, he acquired a fair knowledge he belief the sick, buried the dead, of Erse. He speaks of himself as being distributed money, and avoided no a very backward boy, and says that danger for the sake of the suffering. his slow development made his he died at Milan in 1584. He was im- parents fear that he would never be He died at Milan in 1584. He was imported that he would never be mediately enrolled among the saints, a bright child. At the uge of sevenbut was not canonised until 1610. teen, he with his parents settled down Besides the Nocles Vaticanæ he pub. at Norwich. Here he was articled to manyhomilies, discourses and sermons. a solicitor; he says of him' the prince Borromeo, Frederico (1564-1631), of all Eng. solicitors, for he was a

Gwilym, whom 'I have always considered the greatest poetical genius that has appeared in Europe since William the revival of literature.' Taylor, the apostle of Ger. literature in Eng., in 1821, wrote to a friend, 'A Norwich young man is with me construing Schiller's William Tell, with the view of translating it for the press. His name is George Henry B., and he has learned Ger, with extraordinary rapidity. Indeed, he has the gift of tongues, and though not eighteen understands twelve languages, Eng., Welsh, Erse, Lat., Gk.,



GEORGE HENRY BORROW

Heb., Ger., Danish, Fr., It., Spanish, indentures, B. determined to give up his work in Norwich, and, with his knowledge of languages as his capital, proceeded to London, to seek fame and fortune as a writer. He became a hack writer in the firm of Sir Richard Phillips, who was undoubtedly the original of the vegetarian publisher in Lavengro. In 1825 appeared his first work, Faustus; a translation from the passed on it, 'It is an epic of ale.' B. German, and in the next year a mis- was then in the state in which he cellany from the Danish, both of looked with contempt and fierce diswhich are crude, and both of which trust on practically everybody who show the influence of William Taylor, was not a tinker, a tramp, or an ostler, In 1826 also appeared his Romantic and the book seemed a slap in the face Ballads. The chains of London galled to ordinary, decent, mid-Victorian him, however, and in that year he society. The reaction was intensified threw them off to wander through the by the sequel, and B. never regained

gentleman.' Here his philological country as tinker, gipsy, ostler, or tastes were encouraged. He studied Welsh, and learnt to read and appreciate the works of 'Dafydd ap Gwilym,' whom 'I have always continued the work of the wild. A half fanciful, half authentiful the work of the wild. tic account is found in Lavengro of his fight with the 'Flaming Tinman of Isopel Berners, and gipsy life. Later, he extended his travels to the Continent, walking through parts of France, Austria, Italy, and Russia. He was in Paris during the 'three days'; later we find him at St. Petersburg, confining his studies in the main to living languages. From 1833-35 he was in Russia, superintending the translation of the N.T. into Manchu, the court language of China. In 1835 he published his Targum, a collection of translations from thirty languages and dislosts. Patuming to languages and dialects. Returning to England he accepted the somewhat unlikely position of an agent to the Bible Society, and travelled through Spain, Portugal, and Morocco from 1835-39, his adventures being admirably described in his own work. In 1840 he married Mrs. Clarke, a Nor-folk lady, and settled down to a life of literary labour on her estate on Oulton Broad. To his estate he welcomed his old friends the gipsies. and it became a regular camping ground. There he wrote the works which brought him fame, and there he lived until his death in 1881, his wife having predeceased him in 1869. In 1841 he had pub. the Gipsies in Spain, followed in 1843 by the Bible in Spain. The first, by its extraordinary knowledge of a mysterious race,

and the second, by its wonderful pictures of the country, took the reading world by storm, and placed B. in the foremost rank of living writers. His popularity was too great to last. Lavengro and the Romany Rye, its sequel, came far below the expecta-tions aroused by the earlier work. It was not that the author was at fault, and Portuguese.' On the death of his but that he did not write to suit his father, in 1824, which seems to have public. Larengro is undoubtedly coincided with the expiration of his greater than the earlier books, even if Romany Rye is weaker. The fact was, that they were too much for the squeamish taste of the time. Lavengro is a book of the open air—notice the Gip-y, Priest,—it is the raciest of books; it has B.'s most striking passages. Yet it wrecked his popularity. Lavengro. In 1825 appeared his first The reason is given in the criticism work, Faustus; a translation from the passed on it, 'It is an epic of ale.' B.

his popularity. His later books were | dock of 7} ac., and a considerable certainly more feeble than his earlier; the Sleeping Bard, translated from the Welsh, did not awaken much interest; Wild Wales is lacking in the romantic flights which characterise the earlier work; and Romano Wall, known as Graham's Dr. Lavo Lil, a glossary of gipsy words traverses the parish. Pop. 11,000.

Borsa, a ta. of Hungary. Australian and some rom is smelted. Antonin Wall, known as Graham's Dr. Lavo Lil, a glossary of gipsy words traverses the parish. Pop. 11,000.

Borsa, a ta. of Hungary. Australian and some rom is smelted. Antonin Wall, known as Graham's Dr. Lavo Lil, a glossary of gipsy words and phrases, is curious, but not in spired. It is noteworthy in this connection that B. was never a scientific is noted for its mineral springs. Pop. philologist, although he was a great 5500. linguist. Of all writers who have enjoyed popularity, he seems to be the most detached from his times, being uninfluenced, one would think, by any of the great movements he lived through, from Waterloo to Sedan. Yet it has well been said of him that no prose writer of the century can make us feel so intensely the open air life in which he revels, can transcribe in good strong Eng. the warmth of the sunshine, the beauty of the meadows. the song of the birds. And everywhere he is always himself in his love of boxing and strong ale, and his hatred of conventions, class distinctions, and society restrictions. He is above all

society restrictions. He is above all the prose poet of the open-air life. Works: Faustus, 1825; Romantic Ballads, 1826; Targum, 1835; The Tulisman (from Russia), 1835; New Testament, 1837; The Bible in Spain, 3 vols., 1843; The Zincali (Gipsics in Spain), 1841; Lacengro, 3 vols., 1851; The Romany Ryc, 2 vols., 1857; The Sleeping Bard, 1860; Wild Wales, 3 vols., 1862; Romano Laro Lil, 1874; The Turkish Jester. 1884; Death of Balder, 1889. See Lives by Knapp, Herbert Jenkins, and Edward Thomas. Herbert Jenkins, and Edward Thomas.

Borrowdale, a beautiful valley of W. Cumberland, ascending from the head of Derwentwater towards Honister Pass. It formerly possessed rich plumbago mines, which were exhausted in 1850.

Borrowing, see LOAN.

Borrowing Days, or Borrowed Days, are the last three days of March, popularly supposed, according to Scottish legend, to have been borrowed from April. The deed is thus told in quaint verse:

March borrowit from Averill Three days and they were ill.'

and in the equally quaint prose of the a training for after-life. Complborial of Ma:

flureise the feildis.'

Borrowstounness, or Bo'ness, is a seaport of Linlithgowshire, Scotland. situated on the Firth of Forth, 23 m. W.N.W. of Edinburgh. It is a somewhat dirty town in appearance, and prisons. As short sentences do not has no notable public buildings save give time for producing the effects a fine parish church. It has a wet nimed at, the Prevention of Crime

shipping trade; shipbuilding is also carried on, whilst the other manufs. include salt refining, soap making, brewing, etc. Coal mines are worked, and some iron is smelted. Autoninus' Wall, known as Graham's Dyke,

Borsa, a tn. of Hungary, Austria-Hungary, in the dist. of Marmaros. It

Borsad, a fortified tn. in the dist. of Kaira, Bombay, British India, 23 m. N.E. of Cambay. Pop. 12,228.

Johann Karl Friedrich Borsig, August (1804-53), a German manufacturer, was the founder of the engineering firm of B. He commenced business in Berlin in 1837. and as his trade advanced he was able in 1847 to begin building an extensive foundry at Moabit, near Berlin. He handed on his businesto his son Albert, who still further enlarged it by creeting fresh plant and purchasing coal mines. See August Borsig (1880), written by Vogt.

Borsippa, or Birs Nimroud, see

BABYLONIA.

Borsna, a tn. in S. Western Russia in the gov. of Chernigov. It is about 9 m. from the Pliski station, and 15 from the junction of the Desna with the Seim.

Borsod, a comitat (co.) in Hungary, stretching N. from the Theiss. It is crossed by 48° N. The cap. is Miskolez.

It had long been recognised that juvenile offenders, too old for reformatory schools, required some special treatment to save them from growing into habitual criminals, and in 1902 the plan was inaugurated which is called the B. S., from Borstal Prison, Kent, where it was first tried. Youths from sixteen to twenty-one, when sent there, were divided into three classes, penal, ordinary, and special; promotion to the higher ranks and privileges being earned by industry and good conduct. labour set (gardening, useful crafts, etc.) was calculated to teach selfreliance and self-respect, and to be a training for after-life. Education ad physical development were care-

lly organised, and games allowed a privilege in the evenings. In Idition, a philanthropic body, the Borstal Association, assisted by the treasury, undertook to help in finding work after leaving prison. The result-were very beneficial, and Borstal Committees are now estab. in all Act was passed in 1908 to enable a sufficient period of detention under Borstal rules for those thought to be in danger of relapsing into crime. Release under supervision, and transfer to ordinary prison discipline if incorrigible have also been instituted.

Borszok, a Hungarian vil., in the co. of Csik, 95 m. E. by N. of Klausenburg. Situated in the Carpathian valley, at a height of 2400 ft. above the see it is calchysted for its mineral. the sea, it is celebrated for its mineral waters, and is the most frequented watering-place in Transylvania.

Bort, a tn. in the dept. of Corrèze, arron. Ussel, France. It is situated on the Dordogne, 39 m. S.W. of Clermont-Ferrand. Pop. 4000.

Borthwick Castle, a ruined tower 131 m. S.S.E. of Edinburgh, Founded in 1430. It is about 120 ft. high, and measures 74 ft. by 70 ft. In June 1567, Queen Mary and Bothwell passed four days here. The historian Robertson was b. at the manse close by.

Borthwick, David (d. in 1581), was Lord Advocate of Scotland in the reign of James VI. He received his education at St. Leonard's College, St. Andrews. In 1549 he was called to the bar. He acted as lawyer to Dathwell In 1572 he become time. Bothwell. In 1573 he became king's the year following he advocate, and the year following he helped in forming a constitution for the Scottish Church.

Borwick, Leonard (b. 1868), an eminent Eng. pianist, was born at Walthamstow in Essex. After studying at Frankfort, and receiving lessons from Schumann, Iwan Knorr, and Bernard Scholz, he made his debut in Frankfort when twenty-one years of age, and has since then been one of the leading English planists.

Bory de Saint Vincent, Jean Baptiste George (1780-1816), Fr. naturalist, was born at Agen. At the age of nincteon he went to the Mauritius and made a survey of several neighbouring islands. On his return to France he served for a time in the army, and was on the staff successively of Marshals Dayoust, Noy, and Soult. He subsequently conducted scientific expeditions to Greece and some of the adjacent islands, during which he devoted himself to botanical re-Moréc, L'homme, E sur le Genre Humain.

Boryslaw, a tn. of Galicia, Austria-Hungary, 6 m. S.W. of Drohobyez; it has petroleum and ozocerite springs. which are the richest in Galicia. Pop. 12,000 of which the majority are Jews

Borysthenes, the ancient name for the Dnieper River (q.v.).

Borzhom a Russian watering-place in the gov. of Tillis, 93 m. to the W. of that city. It has a fine climate, and two hot springs: its mineral

and two not springs; its mineral waters are exported. Pop. 6500.

Borzoi, or Russian Wolfhound, is a beautiful dog of the greyhound type, which is found to endure cold and travel rapidly over snow. It is light and slender of build, has warm, silky hair and large hairy feet; its swiftness is remarkable, and it is therefore much used in wolf-hunting. The much used in wolf-hunting. Czars of Russia have for a long time kept special kennels of these hounds, and the first pair seen in England was given to King Edward by the Czar in 1870. Bs. hunt in couples, catching the wolf up very speedily, when one attacks it on each side, holding it until the huntsman rides up to dispatch it. When not engaged in hunting, the hound is good-tempered, obedient, and very intelligent. In colour it is usually white, but black, tan, and yellow patches are frequently to be seen. In appearance it is graceful, with a long, narrow skull, long and powerful neck and body, slender legs, deep chest, flat sides, and a pro-fuse and silky coat. The average height of the male is 28 to 33 in., and of the female 26 to 30 in.

Bos, the technical name of a genus of the Bovide, or antelope, sheep, goat, and oxen family, which contains a single species but many varieties. B. primigenius, the wild ox of Europe, now extinct, is said to be the progenitor of the Chillingham B. frontalis is the gayal, B. gaurus the gaur, B. sondaicus the banteng, B. taurus the wild cattle or aurochs, B. bonasus the European bison, B. grunniens the yak. See Ox.

Bos (fossil), the oxen family, occurs in a fossil state in the superficial deposits of Europe and America. B. primigenius is found in the Pleistocene in Essex and Wiltshire; B. longifrons in Ireland is a smaller species. Urus priscus, a variety of B., has been found in fresh-water deposits of Yorkshire, Essex, and Worcestershire.

Bos, Lambert (1670-1717), Dutch scholar and critic, born at Workum in devoted himself to botanical re- Friesland, and educated at the unisearches. In 1839 he went to Algiers, versity of Francker, where he became Among his works are: Younge dons Gk. professor in 1704 and spent the les Quatres Principales des Mers rest of his life. His works include d'Afrique, Expédition Scientifique de notes on Thomas Magister, 1698; Morée, L'homme, Essai Zoologique Exercitationes Philologicae, 1700; sur le Gerre Humain Ellipses Graca, 1702, translated into Eng. by John Seager in 1830; Testamentum V'clus cxVersione 1709; LXX. Interpretum, 1709; Anti-Graca, 1714; Animadverquates siones ad Scriptores quosdam Græcos, 1715; and small treatises on accents and Greek syntax.

Bosa, a tn. of Sardinia, Italy, 30 m.

Bosio

S. by W. of Sessari. The seat of a bishop; also noted for its coral fishery.

Pop. 6000. Bosboom, Anna Louisa Gertruida Toussaint (1812-86), Dutch writer, born at Alkmaar, was the daughter of Toussaint, a chemist, and the descendant of a Fr. Protestant family. During her early life she spent serv years in historical research, of which

she made good use later for her novels. In 1851 she married Jan B., the painter. Her works, many of them stories of Dutch history, are true representations of the manners and customs of the people. Among these works are: Amalgro, 1837; Engelschen te Rome, 1839; Het Huis Lauernesse, 1852 (trans. into sev. languages); the three stories of the Leicester family: Der Graaf van Leycester in Nederland, 1845; Der Vrou van het

Leycestersche tijdvak, 1849; and Gideon Florensz, 1854; and Major Frans, 1875. See Onze hédendaagsche letterkundigen met byschrift van Dr. Jan ten Brink, 1882-7.

Boscan-Almogaver, Juan (c. 1495-1540), Spanish poet, born at Barcelona, of an ancient noble family. came to Granada to court of Charles V. in 1516. He was afterwards entrusted with the education of the celebrated Duke of Alva. He passed some years in military service. His poems were published by his widow at Barcelona in 1543. They are divided into four books. The first contains light poems in the old Castilian metres. The second and third books consist of a number of poems in It. metre, sonnets, canzones, and poems in blank verse. Hero and poems in blank verse. Hero and Leander is the longest of these. The fourth book contains his best effort, The Allegory. He pub. in 1534 a translation of Balthasar Castiglione's

Boscawen, Edward (1711-51), admiral, third son of Hugh, first Viscount Falmouth. He became a lieutenant in 1732, served at Porto Bello, ∽anded 17

It. poem, The Courtier.

Perpignan.

1746; a ap. pointed commander-in-chief by land and sea in E. Indies in 1747. Unsuccessfully attempted to reduce Pondicherry. He was nominally M.P. for Truro after 1741. He was Lord Commissioner of the Admiralty, 1751-61; vice-admiral, 1755. He commanded on N. American Station, in Channel, off Brest, and in the Bay of Biscay at intervals between 1755-7; commander-in-chief of flect at siege div. In April 1900 Le of Louisburg, 1758; Privy Councillor defeated the Boers here. 1759. Defeated Fr. in Lagos Bay, Bosio, François Joseph 1759. He was commander of the fleet in Quiberon Bay in 1780.

Bosch, Johannes van Den, Count (1780-1844), a Dutch general and administrator, born in Gelderland. took up the military profession, going to Java in 1797, and rising to be governor-general of the Dutch E. Indies in 1828. He endeavoured to improve the condition of agriculture and land tenure by introducing the so-called 'culture' system. By this system the native cultivators were exempt from ground tax, but cultivated one-fifth of the land as the gov. directed, the latter taking the produce. The results of this system were good under General B., but many disputes occurred afterwards. He was in 1818 the first head of the Society of Charity formed to attempt to give a fillip to agriculture by the cultiva-tion of the unreclaimed heath lands in the Eastern provinces of Drente, Holland. From 1833 to 1839 he was Colonial Secretary of State, and was created count in 1842.

Boscobel, a parish in Shropshire, Newport div., 22 m. E. by S. of Shrewsbury. The manor house here was the retreat of Charles II. after battle of Worcester, 1651. Pop. 250.

Bosco Reale, a com. in Italy, 12 m. E.S.E. of Naples at the southern base of Mt. Vesuvius. Adjoining it is the com. of Bosco Treense. Pop. of

Bosco Realc, 8400. Bosco Iteaic, 8400.

Boscovich, Roger Joseph, celebrated mathematician and astronomer, born at Ragusa in 1711, and entered the order of Jesuits. He was appointed teacher of mathematics and philosophy in the Collegium Romanum at Rome. His reputation was previously made by the solution of the problem to find the survivant of the problem to find the sun's equator and fix the time of its rotation by observing the spots. He was sent to London in 1760 to defend the interests of Ragusa. In 1764 he was He died at appointed to a professorship in Pavia, and subsequently at Milan. After the dissolution of his order in 1773 he went to Paris, was given a pension by the king, and appointed director of optics to the navy. Afterwards returned to Milan where he gradually became insane. Died in 1787. wrote a work on optics and astronomy, Opera Pertinentia ad Opticam

et Astronomiam. He was also a poet.
Boscowitz, in Moravia, Austria, 21
m. N. by E. of Brunn. Has coal mines and glass and chemical works. Pop.

5000.

Boshof, a tn. of the Orange Free State, situated 40 m. N.E. by E. of Kimberley, and is the cap. of B. div. In April 1900 Lord Methuen

Bosio, François Joseph (1769-1845), an eminent sculptor, born at Monaco. Though an Italian by birth, he was brought up and constantly lived in two provinces is the history of the France. He became a favourite with prov. of Hiyria. Gradually, however, Napoleon I. He became famous after the Slavonic immigrations, ex-

the prov. of Bosnia, taking a northerly

course.

copper, and brass wares. A citadel

overlooks the town.

that year by Austria, so that at the present time they form the most southerly of the ters, of the Austrian Since the treaty of Berlin, empire. 1878, they have been administered by Austria, and so the change in 1908 was merely a nominal one. In area they are about half of the area of England, and are enclosed by Dalmatia, Servia, Albania, and Montenegro. The greater part of the country is included in the basin of the Danube. It is almost entirely mountainous, the Dinaric Alps being the chief range of mts. The chief rivs. are the Save in B. and the Warenta in H. In B. the forests on the slopes of the Dinaric Alps give a good supply of timber, and the pasturage here is also very good. Wheat, barley, and maize are also raised in sufficient quantities for home consumption, while tobacco and the vine are cultivated in the southernmost parts. Fruit is also grown to a very great extent, and the chief fruit export is prunes. There is a consider-able trade between Turkey and these states, and the means of communication have been reformed very greatly during the occupation of the provs. by Austria. Railways have been built in conjunction with the railways of Hungary, and the postal and telegraphic systems have been developed by the state. The pop. is increasing, and has now reached over 1,500,000. The inhabitants are officially referred to as Bosniates, but divide themselves up under the following divs.: Croats (Rom. Catholies), Serbs (Orthodox Church), and Turks (Moslems). Education is by no means developed sufficiently, but gradually the system is being reformed under the Austrian government.

History.—The early history of these

Napoleon I. He became famous after the Slavonic immigrations, exchiefly on account of the figures he executed for the column in the Place gary, caused them to unite under one vendome. He was also a favourite ruler. But the history of the race up with Louis XVIII. and the succeeding kings of France, who employed be regarded as the history of a race him in many public works. He was dependent upon the Byzantine Emperated baron by Charles X., and admitted into the Institution in 1840. Bosjesmans, see BUSHMEN.

Bosiesmans, see Bushmen. 160 m. It crosses the eastern part of independent kingdom, but was finally captured in the 15th century by the From the 15th to the 19th Turks. Bosna-Serai, cap. of Bosnia, on the centuries the history of the Bosnians Miljacka, a trib. of the B. Seat of a is the history of a conquered race, Rom. Catholic bishop. Manufs. iron, crushed and spurned beneath the foot crushed and spurned beneath the foot of the conqueror. The Moslems in the country quickly seized all the power. Bosnia and Herzegovina, provs. and the Christian pop. was left very until 1908 included in the European much to the mercy of the Mohampossessions of Turkey, but annexed in medans. In 1875 a Christian rising took place, and the Christians were joined in the following year by the Servians and

on Turkey. By of 1878, the two provs. were handed over to the military occupation of Austria, and the occupation was only carried out with the utmost difficulty. But under the Austrian administrator Kállay great improvement was made in the position of the people of B. The provs, when he died in 1903 were certainly in a more prosperous and promising state than they had been since their first occupation by the Turks 400 years previous. The Young Turk movement in 1908 warned Austria that reform in Turkey might lead to such a strengthening of her power that she would be able to demand that the provs. should be evacuated. In this way the reforms and the progress made under Austrian administration would accrue only to the benefit of the Turks. Hence, taking advantage of the enweakened state of Russia, and the pending declaration of the independence of Bulgaria, Austria declared the annexation of

B. and H. on October 8, 1908.

Bosos-Jeno, a town in Austria-Hungary, situated on the R. Maros, It is noted for its wines. Pop. 6000.

Bosphorus. or Bosporus: 1. Name

given by ancients to the strait which leads from the Black Sea to the Sea of Azov. Called also Straits of Yenikale or Kertch. History of the kingdom is involved in obscurity. It was named Cimmerian from the Cimmeri who dwelt on its borders c. 750 B.C. The word is derived from the Gk. denoting Ox-ford. The legend is that Io, daughter of Inachus, crossed the Thracian B. in the form of a cow. This straft unites the Black Sea with the Sea of Marmora, and forms part of the boundary between Europe and Asia. The channel is 18 m. long, and has a depth varying from 20-66 fathoms. Its minimum width is 2 m. It is rarely frozen over. The inlet, on either side of which lies Constantinople, is called the Golden Horn. The shores, which are elevated, are composed of various volcanic rocks, such as dolerite and granite, but along the remaining course the formations are Devonian. The scenery on both sides is varied and beautiful, being dotted with cypresses, laurels, and planetrees and covered with palaces, vils.

nople. The B. is under Turkish control, and by a treaty of 1841, ratified by the treaty of Berlin in 1878 and other times, no ship of war other than Turkish may pass through the strait without the consent of the Turkish authorities (the Porte). It is an interesting historical fact that Darius Hystaspes threw a bridge over this strait when about to invade Greece in 493 B.C.

Bosquet, Pierre François Joseph (1810-61), a Fr. marshal, was born at Mont de Marsan in Landes. He entered the army in 1833, and went to Aigeria a year later. Became a captain in 1839, lieutenant-colonel in 1845, and colonel of a Fr. line regiment in 18547. He returned to France in 1853. In the Crimean war he contributed greatly to the victories of Alma and Inkerman. He was wounded at the siege of Malakov, where he took a leading part in the assault. He became a marshal of the Fr. and a senator in 1856.

Bosruck is the name of an Alpine tunnel on the Pyhrn railway, connecting Klaus Steyerling with Selzthal. It belongs to Austria; is situated at an elevation of 2405 ft. above the sea. The tunnel which is 3 m. in length, took three years to build, being started in 1902 and finished in 1905.

Boss (O.Eng. bocc, O.H.Ger. boco, tuft or branch) is an ornament in conditional translation which was originally.

of the
B. should have a convex section. It
was first hemispherical in shape
carved with foliage; after that the
shape altered somewhat, and it was
not necessarily round, figures and
animals being introduced with or
without the foliage. Eventually the
general plan of the B. was square.

Bossiney, or Trevanna, a tn. of Cornwall. It sont two mombers to parliament before the Reform Act, 1832, transferred its representation to

the county. The pop. is about \$80. Bossu, Réné de (1631-80), Fr. critic, born in Paris; studied at Nanterre; became a canon regular of Sainte-Geneviève in 1649. His chief works were, Parallèle des principes de la physique d'Aristolle et de celle de René Descartes, 1874; and Traité du Poème Epique, 1875. This latter, the theory of which was that the subject should be chosen before the characters, and the action arranged independently of them, was praised by Boileau, and twice translated into Eng. It was known to Dryden, Addison, and Pope.

Bossuet, Jacques Benigne, celebrated orator and prelate, was born at Dijon, France, on Sept. 27, 1627. Although of bourgeois rank, his family took an honourable part in the public and official life of Burgundy. He was destined from infancy for the Church. On his father's appointment to the presidency of the parliament in Metz, Jacques was left to the care of his uncle, whose delight it was to foster his nephew's gifts. At the Jesuits' College where he was educated, he outclassed all other scholars in Gk. and Lat.—Virgil and Homer being his favourite studies. After reading the prophesies of Isalah he was so struck by the beauty of their poetry that he became virtually 'a man of one book.' The Jesuits endeavoured to enlist him into their order, but his family was against the proposal and he went to Paris in 1642. He entered the college of Navarre where he achieved distinction in every dept. except mathematics. At the age of sixteen his attainments were the talk of the tn. At the age of twenty-four he was appointed archdeacon of Metz, and became a priest in 1652. He spent six years in pastoral activity and in study of the Scripture. He wrote at this time a book entitled Réfutation du Catéchisme de Paul Ferry. He became renowned as a preacher, and was in perpetual request in the city. When he appeared crowds flocked to listen. The Queen, Condé, Turenne, and Sevigne listened to him frequently, and Louis XIV. on hearing him for the first time sent a message of congratulation to the young man's father. His excellent and incomparable discourses have been divided into three parts, according to the place where they were uttered: (1) Those of Metz, showing a considerable amount of crudeness; (2) those of Paris, distinguished by strength and splendour; and (3) those of Meaux, in which faultless grace of composition is the chief

and later became preceptor to the Dauphin. He resigned the former Dauphin. He resigned the former post and plunged with great vigour into his new duties, recognising that on the culture of the Dauphin might depend the future welfare of the Fr. people. During this period he wrote L'histoire abregée de la France, La politique sacrée, and the celebrated Discours sur l'histoire universelle. In 1671 he was elected a member of the Fr. Academy. About this time he pub. the much criticised and widelytranslated L'exposition de la doctrine Catholique. This book created much discussion, and twice received the imprimatur of the pope. In 1681 he was appointed to the bishopric of Meaux. Soon after he attended the famous assembly of the Fr. clergy, convoked by royal edict, and he preached the opening sermon. In 1688 appeared L'histoire des variations des Eglises, a review in fifteen kooks of confessions of fifth ordital books of confessions of faith emitted by Protestant churches during the Reformation period. He died at Paris in 1704. He was of unrivalled eloquence and great learning, a de-fender of the faith, and champion of anct. rights and liberties of the

Gallican Church.

Bossut, Charles (1730-1814), mathematician, born at Tarturas, near Lyons, France, on Aug. 11. Studied under Cairant and D'Alembert. From 1752-89 professor at Mezières. After the Revolution he was professor at the Polytechnic schools in Paris, where he died. Wrote Essai sur l'histoire générale des Mathématiques.

Bostan, El, 'the Garden,' a tn. of Asiatic Turkey, 40 m. N.W. of Marash, on the N. side of Mt. Taurus.

Pop. 8000.

Bostaniis were established by Mohammed II. in Turkey as a military force. They numbered about 5000, exclusive of local detachments, and were employed in guarding the forest

districts.

Boston (Lincolnshire), municipal and parl. bor. and a scaport tn., is situated on the R. Witham, 30 m. S.E. of Lincoln by rail, on the Great Northern Railway. It lies in a flat agric. dist. Its anct. name was St. Botolph; STn., from St. Botolph, who founded a monastery here in 654, which was afterwards destroyed by the Danes in 870. The Church of St. the Danes in 870. The Church of St. Botolph is a Gothic structure with a tower 200 ft. high. The docks, which have proved very profitable, belong to the corporation. B. is the headquarters of the deep-sea fishery. a port B. was of auct. importance, but

characteristic. In 1669 B. was applight vessels. In 1882 a dock about pointed to the diocese of Condom, 7 ac. in extent was constructed. The and later became preceptor to the bed of the riv. was also considerably Dauphin. He resigned the former deepened. During the 14th and 15th centuries the Hanseatic and Flemish merchants were largely responsible for its prosperity. There is a market for eattle and sheep. Foxe, the mor-tyrologist (1517-87), was a native. The borough returns one member to parliament. Area 2727 ac. Pop. 15,667.

Boston, cap. of Massachusetts, in Suffolk co., U.S.A., is situated on an inlet of Massachusetts Bay called B. Harbour, 234 m. N.E. of New York by rail. B. has the longest railway station in the U.S., opened in 1898. A whole series of lines of railway converge at this city extending over 2000 m. At the outskirts of the city is the junction railroad connecting most of these lines with one another. The chief imports are wool and woollen goods, sugar, leather and leather goods, cotton and cotton manufs. The chief articles of export are wool, iron, and steel manufs., cotton and leather manufs., manuls., cotton and leather manus., animals and bread stuffs B. is the prin. wool market of the U.S. and second only to New York in value of its foreign trade. The climate is generally healthy though exposed to E. winds, and lung complaints are very prevalent. B, is one of the finest cities of the U.S., and contains some of the choicest, examples of archiof the choicest examples of architecture. Trinity Church, erected at a cost of 800,000 dollars, and the Rom. Catholic Church are two of the chief glories of the city. The former was begun in 1877, and built in the Romanesquestyle of Southern France is the masterpiece of H. H. Richardson. There are windows by William Morris, Burne-Jones, and others in it.
The Mother Church of the ChristianScientists (whose headquarters are
at B.) cost \$400,000 and was opened
in 1906. The library (1885-1905) cost 2,486,000 dollars, is a dignified building of pinkish-grey stone, and is built in the style of the It. Renaissance. The old museum is a zed-brick edifice in modern Gothic style. An extensive system of railways, opened in 1901, and a subway relieve the traffic of the streets. This subway for electric trams is about 3 m. long, in part with four tracks and in part with two. It was built by the city at a cost of about 7,500,000 dollars (£1,500,000), but was leased and operated by a private company on such terms as to repay its cost in forty years. Among other public buildings are Tremont Temple, headquarters of the New England Baptists, Free Public Library, in the 18th century the riv. silted up, post office and sub-treasury buildings, and thus it was only navigable for Lowell Institute, hospitals, scholastic

institutions, etc. It has a university, a medical college, and two conservatories of music. As a musical centre it rivals New York, and was the undisputed literary centre of America until the latter part of the 19th century. It bore a conspicuous part in the early trouble with England, and brought about the B. Massacre of 1770. After the destruction of the British-taxed tea in the harbour (1773), the port was closed and the tn. was occupied by a British force. which was compelled to evacuate in March 1776. During years 1830-60 it was the headquarters of the movement for the suppression of slavery. The city has suffered much by conflagration, especially in 1872, when 80 acres of buildings were destroyed by fire. Bp. of Franklin, Copley the painter, Poe. Emerson, and many other eminent men. Pop. 560,892. Boston, Thomas (1677-1732), Scot-

tish divine, employed in the office of Alex. Cockburn, writer to the signet. in 1689. M.A. Edinburgh 1694. He studied theology during years 1690-1701. He was minister at Ettrick, 1707-32. Basing his views on a work, Marrow of Modern Divinity, he, with cleven others, opposed an Act of Assembly in 1720, condemning the book. These twelve were nicknamed 'the twelve apostles' and 'marrow men.' He pub. chiefly religious works. A treatise on Heb. accents also ap-

peared posthumously.

Boston Tea Party, so called from a ···hich

773.

the States which had have been attempted. There was also a large protest meeting at the Old South Church, and as this proved a failure, on the same night about fifty men who were disguised as Mohawks boarded the British tea ships in the harbour, and chests of tea. and cast overboard 400

Bostrichus, a genus of coleopterous insects of the family Bostrichide. The beetles of this family are found on old trees, upon which the larvæ feed, and they greatly damage woods. B. capucinus, rarely found in Britain, is about half-an-inch long, has black

legs. head. thorax, and antennæ, and the rest of the body is red.

Boström, Erik Gustaf (b. 1842), a Swedish politician, was a member of the Second House of the Swedish Parliament from 1875 to 1893. He was Prime Minister from 1891 to 1900, and for a second time in 1902. In politics he belongs to the Con-servative party, and is in favour of protection; he is now a member of the First House of Parliament.

Boström, Kristoffer Jakob (1799-1866), a Swedish philosopher, studied at Upsala University, and was tutor to the Swedish princes from 1833 to 1837. In 1840 he was made professor of practical philosophy at Upsala, a post he held till 1863. The principle of his philosophy, which may be termed a rational idealism, is that the only true reality is the spiritual in nature, and the highest aim is the direction of action by reason in harmony with the Divine will. The difference of his system from Platonism constitutes also a resemblance to Spinozism—that the 'ideas' of God are not mere abstractions, but living personalities.

Boswell, Alexander (1775-1822), son of James B., the companion and biographer of Dr. Johnson, was born at Auchinleck. He was educated at Westminster and Oxford. He settled at Auchinleck, where he set up a private press and printed many rare books in early English and Scottish literature. He inherited his father's love of industry and of letters, and published many volumes of verse. In 1817 he contributed twelve songs to Thomson's select collection of original Scottish airs. He was created a baronet in 1821 for a loyal com-position entitled Long live George the Fourth. He fought a duel with James Stuart of Duncarn in 1822. who challenged him as the author of certain truculent pasquinades reflecting on his honour and courage. B. was mortally wounded and died the next day. He was a devoted admirer of Burns, and by his own exertions raised £2000 for the monuinto ment on the banks of the Doon.

Boswell, James (1740-95), biographic of Johnson, and son of Alex. B., Lord Auchinleck. He was educated at Edinburgh High School and University, studied law at Glasgow under Adam Smith and also at Edinburgh. He made the acquaintance of Johnson in London in 1763. Studied civil law at Utrecht in 1765, and travelled thence to Berlin and Geneva, meeting V

made the

Italy, and Paoli in Corsica. He returned to England in 1766, became an advocate in the same year. He pub an Account of Corsica in 1768, and Essays in favour of the Brare Corsicans in 1769. He made frequent visits to Johnson in London between the year 1772-1784; toured with Johnson in the Hebrides, Aug to Nov. 1773. In the same year he was elected a member of the Literary Club. He then began to keep terms at the Inner Temple in 1775, and succeeded to his father's estate 1775. He pub. a Letter to the

People of Scotland on the present state of the Nation, hoping to gain thereby political influence (1783). He pub. a journal of his tour to the Hebrides, the work being revised by Malone in 1786. He was called to the Eng. bar in 1786; recorder of Penzance. From 1721 it was worked Carlisle, 1788-90; came to reside in London, 1789; and pub. the Life of Johnson in 1791. He became secretary of foreign correspondence; ful scenery. in 1791.

Boswell, James (1778-1822), son of Johnson's biographer, a barrister by profession and a member of the famous Roxburghe Club, was awarded the Vinerian fellowship at Brasenose, He completed his friend Malone's Shakespeare (2nd ed.), and also edited the third variorum Shake-

speare, 1821.

Boswellia, a genus of balsamic plants belonging to the order Burseracex, comprising ten Indian and African species. They are said to yield olibanum or frankincense used in incense in Catholic churches, and one species is supposed to be the Libanos of Theophrastus, the Thurea virga of the Romans. B. thurifera, a large Indian timber-tree, and B. glabia, also Indian, yield a resin.

Bosworth (Leicestershire), a small Leyde market town 12 m. W. by S. from berg. Leicester. Two miles to the S. is B. Paris Field, the site of the last battle supply between the houses of York and bouqu Lancaster, Aug. 22. 1485, when Richard III. was beaten by the Earl ined. of Richmond, afterwards Henry VII. as the and slaip. Dr. Lebyson reason below to be

parish \$55.

Bosworth, Joseph (1788-1867), pro-lessor of A.-S. in the university of Oxford, was born in Derbyshire. Educated at Repton Grammar School and Aberdeen University, where he took the degrees of M.A. and LL.D. on his Grammar and Dictionary of Anglo-Saxon Language, was pub. in The varied origin of the plants 1838. He was a Fellow of the Royal necessitates placing them in consociety and of the Society of Antiquaries. In 1840 he obtained the they were taken. Vicarage of Waithe, Lincs.; in 1857 the rectorship of Water Stratford, bucks., and in 1858 the professorship relates to the vegetable kingdom, and of A.-S. at Oxford University. He ledd the chair until his death. held the chair until his death.

ful scenery.

Botanic Garden. The B. G. has for its primary object the promotion of botanical science, and is of comparatively modern origin. It owes its birth to pharmacy. The earliest European school of medicine was at Salerno, and there we find records of the medical garden of Mattheus Sylvaticus (1309). In 1333 a similar garden was estab. by the republic of Venice. Soon many public and private venice. Soon many public and private bodies followed the example. The botanical garden, in the modern use of the phrase, dates from a private one erected at Padua between the years 1525-33. from the public one at Pisa, estab. by Cosmo de Medici in 1544, or from that of Padua in 1555. B. Gs. were then laid in most It. cities and at the universities of It. cities and at the universities of Leyden, Leipzig, Breslau, and Heidelberg. A royal garden was estab. at Paris in 1597, its chief use being to supply the ladies of the court with bouquets, and it was not until 1616 when that its scientific purposes were de-ne Earl fined. This garden became famous as the Jardin des Plantes, and chairs and slain. Dr. Johnson was an usher of botany and pharmacology were in the Grammar School. Pop. of founded in 1635. In the 17th century many gardens were laid, the chief including those at Oxford, Chelsea, and Edinburgh. In the last century, further stimulus was given to this movement by Linnaus. Most European and American universities now possess a botanical garden. 1815 he took a curacy at Nottingham, America are also the famous gardens and two years later was presented of Philadelphia and New York. Kew to the vicarage of Harwood Parva in Gardens in London. estab. in 1760, Bucks, where he remained twelve are generally regarded as the largest years. He next spent several years in, and best equipped gardens in the Holland. He deveted week time to world and there are also fine gardens. Holland. He devoted much time to world, and there are also fine gardens literature and especially to researches at Berlin, Vienna, and Edinburgh. in A.S. His literary reputation rests. The principle of arrangement of the plants is varied, some ranging them Anglo-Saxon. His Elements of Anglo-according to their geographical dis-Saxon appeared in 1823. His print tribution, and others according to and most useful work, a Dictionary of their medical and economic interests.

and the fossil state. It treats of their Böszörmeny, or Hajdu - Boszor - external and internal morphology, or

structure and development; of their by Henshaw in 1661, while Hook anatomy; histology, or minute in excited attention by his examination ternal structure; physiology, or their functions and organs; eclology, or relation to their environment; pathology, or diseases; phylogeny, descent from other forms; paleobotany, or fossil forms; geographical distribution; taxonomy, or classification and economic uses. In itself it constitutes a large division of Biology, or the science of life, and thus associated with Zoology, which deals with animal life. B. is an ancient branch of learning, dating from the time of Solomon, who 'spake of trees, from the cedar of Lebanon to the hyssop on the wall '(1 Kings iv. 33). Herodotus and Aristotle were conversant with the science, while Theophrastus studied the morphology of plants. Another Greek, Discorides. seems to have been the first author of book on Materia Medica, while Pliny wrote of grafting and budding. and recognised the sexuality In the year 1532 Otho flowers. Brunsfels, a Bernese physician, published the Herbarum Viva Eicones, in which he described about 240 species, about one-fifth of the whole number of those which had been discovered up to his day by the Greek, Roman, and Arabian herbalists. As a reformer of the science he was fol-lowed by Tragus, Fuchs, and Matthio-lus, and especially by Conrad Gesner, a native of Zurich, who was assisted by compilers in making a collection of known species from various books. In 1841, nave construited greatly in The followers of Gesner were ous, and among the most disti: of them, between the years 1 1660, were Turner, Dodoens Clusius Cæsalpinus, and the The knowledge of so many

perfect, but it comprehended several combinations which are recognised at the present day, e.g. plants belonging to the Leguminose and Graminee. Wm. Turner, known as the 'Father of English B.' succeeded Lobel, publishing a book on systematic arrangement in 1551, and in 1597 a barber-surgeon of Holborn, John Gerard, wrote his Herbal, which was the standard book of English botanists in the 17th century. A methodical arrangement of plants was discovered by Cæsalpinus, a Roman physician attached to the court of Pope Sixtus whose De Plantis appeared in 1583. Later on other discoveries were made, e.g. spiral vessels were described

of cellular tissue, and Grew gave rise to physiological B. The true principles of classification were at length obtained by John Ray, who expounded these in his Historia Plantarum, the first volume of which avpeared in 1686. The science had now become so firmly established in England that a professorship of B. was created at Oxford, and the chair was filled by Dr. Robert Morison (1620-83). In France J. P. de Tournefort was elected professor at the Jardin des Plantes, and in 1700 he described his system of classification in his Institutiones. This was subsequently Institutiones. This was subsequently displaced by Linneus, whose Species Plantarum was published in 1753, and who revolutionised the whole of this branch of B. He insisted on the importance of a good nomenclature. and examined particularly the sexual system of plants. Eleven years after the death of Linnaus, A. L. de Jussieu, in 1789, produced, under the name of Genera Plantarum, an arrangement of plants according to their natural relations, using as stepping-stones Ray and Tournefort. A. T. Brong-niart, the French botanist, is responsible for an increase of knowledge in the fortilisation of plants, establishing the theory of Amici that pollen-tubes am and Sir Wm. fessor of B. in

of Kew Garden Genera Planta-Imprimis in

Servata 3 classification ie present time divided into

made classification imperat:
Matthew Lobel, a Dutch physician, Bryophyta, Pteridophyta, and Spormathew Lobel, a Dutch physician, maphyta, each of which is again divided. The Thallophyta includes the Algre, to which all sea-weeds and many fresh-water plants belong, and the Fungi, to which mushrooms, toadstools, and moulds belong; the Lichens

, and are also The Bryoactude liver-

worts and mosses, while the Pterido-phyta, or Vascular Cryptogams, comprise ferns, selaginellas, equisetum, and club mosses. The Spermaphyta. Phanerogams, or Flowering Plants is the largest group, and is subdivided into Gymnosperms and Angiosperms. The gymnospermous flowering plants are trees or shrubs which have their ovules freely exposed, the carpel is not closed to form ovary, style, or stigma, the flowers are always unisexual and the plants usually monœcious; they include the Cycads, Conifers, ovules, a style, and a stigma. When and Gnetacee. The angiospermous in a single flower both and cecium and flowering plants are numerous, and comprise many shrubs and trees as well as herbaceous plants and grasses. Among them the Monocotyledons are plants which have only one seed-leaf, and they are usually characterised by having parallel venation in their leaves, the flowers in parts of threes, e.g. the palms, grasses, lilies, and orphids the Distributed are plant. orchids; the Dicotyledons are plants which have two seed-leaves, and are characterised by having reticulate venation in the leaves, and the flowers in parts of twos, fours, or fives, e.g. buttercups, roses, parsley, nettles, bluebells, and oak. In studying the morphology of plants it is usual to begin with the simplest form of vegetable life, and this may be seen in some algae. The lowest plant is a unicellular body composed of proto-plasm, containing a single nucleus, and several chloroplasts which are coloured green by chlorophyli. In the next form the plant shows a dis-tinction between a base and apex, one descending into the earth for fixation and to obtain nourishment, the other ascending to the light. Among the Bryophyta there is no such differentiation into root and shoot, but in the Pteridophyta both are present. In the Phanerogams, of course, a root and shoot are the essential parts of a plant, and specialisation of other members reaches a very high point. The shoot bears upon it many leaves and modifica-tions of leaves, the most noticeable being the foliage-leaf, which consists of a vagina, or leaf-base; petiole, or stalk; and lamina, or blade. In many Dicotyledons, but few Monocotyle-dons, the vagina has two little out; growths called *stipules*, e.g. the rose. The embryonic leaves of a plant are known as cotyledons, the membranous leaves found on underground stems or serving as protection for buds are known as scale leaves, while the leaf-structure in the axil of which a flower appears is called a bract. The flowers themselves are made up entirely of leaves, and a complete, perfect dicotyledon has present a calyx, corolla, andrecium and gyngeeum all composed of leaves. In Monocotyledons

gynecoum are present, it is said to be hermaphrodite or bisexual, e.g. buttercup; when the flower consists of only one of these organs, it is uni-sexual. If hermaphrodite, male and female flowers are all found on one plant, e.g. ash, it is polygamous; if the unisexual flowers occur on the same plant, e.g. hazel, they are monœcious; and if on different plants, e.g. willow, they are diœcious. The internal morphology, or histology, of plants is concerned with the cell, its origin, structure, contents, etc., the tissues and tissue-systems to which it gives rise. The changes in these contents, the fusion of cells, the thickening of the cell-wall, its growth in surface-extent, and its chemical changes are a few of the subjects which must be studied in connection with histology. The physiology of plants deals with the processes they for their nutrition and Water is essential to all undergo growth. plants, and the living substance of a green plant is built up of carbon, oxygen, hydrogen, nitrogen, sulphur, and phosphorus, while such other chemical elements as calcium, potasmagnesium, sium, iron, sodium, silicon, and chlorine also enter into its composition. The carbon is obtained from the carbon dioxide of the atmosphere by the green parts of the plant in the presence of light by means of the process known as photosynthesis, or carbon assimilation. the other elements are procured by root-absorption, a method by which water containing salts in solution passes into the plant through the root. It is evidentthat a largeamount of water is absorbed, and the surplus of water is absorbed, and the surplus is given off from the erial parts as vapour by the process of transpiration, which, as it is regulated by the vital activity of the plant, is by no means identical with mere evaporation. Respiration, in plants, unlike carbon-assimilation, takes place over their whole surface, independent of their whole surface, independent of light and chlorophyll; it is a breathing process as contrasted with one which feeds, and the two are opposed in that respiration absorbs oxygen and gives out carbon dioxide, while photopused of leaves. In Monocotyledons out carbon dioxide, while photothe callyx and corolla (i.e. the sepals and petals) are fused together, and Growth is the result of all the various the result is a perianth. The essential building-up and breaking-down proorgans of the flower are the andrescum, or stamens, and gynecoum, or The simple cell which is the foundapletil, because it is they which are responsible for the reproduction of plant-life receives nourishresponsible for the reproduction of their kind. The stamens are comther nutritive processes based and their kind. The stamens are com-in the nutritive processes, hence grows posed of a filament and anther, in in extent, while the cell-wall grows by which is stored the pollen that means of respiration, which decomfertilises the female organs. The poses the protoplasmic substance, pistil consists of an ovary containing sets free energy, and forms certain

sexual cells, or gameles, fuse together to produce a cell which eventually develops into a new plant; in the latter part of the parent plant, either a single reproductive cell called a spore, or a specialised vegetative part gives rise directly to a new plant. In the lower divisions of the vegetable kingdom an alternation of generations is often to be observed, i.e. a spore produces a new plant which in its turn gives rise to gametes, and the plant resulting from the fusion of gametes again produces spores. In the higher plants the sexual method is pre-dominant; the pollen, when trans-ferred to the stigma, sends out a pollen-tube which pierces both stigma and style, finally reaching an ovule and converting it into a seed with power of reproducing its, kind. The geographical distribution of plants is the science which endeavours to dis-cover the reasons for the presence or absence of particular plants in various parts of the globe. The first step in this science is, naturally, the arranging of the plants in their different areas, and then the consideration of their chief characteristics, their modifications, methods of life, the effect of the soil and external conditions, their relation to plants in other areas and kindred subjects. Various special articles should be consulted on these points, such as the article entitled ARCTIC EXPLORATION (Flora), Paleobotany, or fossil B., is a study which has engaged the attention of scientists for little over a century, though occasional reference to fossil plants have been made by early writers. Leaf impressions were first recorded by J. D. Magu in 1664, and the first book published in Britain on such a subject was that of Eduard Lhuyd, who in produced his Lythophylacii Britannici Iconographia. The chief work of A. F. Brongniart was his Prodrome d'une Histoire des Végétaux Fossiles, which appeared between the years 1828 and 1847. More modern paleobotanists are Scott, Seward, Schimper, and Dawson. See, for classification, G. Bentham and J. D. Hooker's Genera Plantarum, 1862-83; Hooker's Genera Planturum, 1862-83;
A. Engler and K. Prantl's Die Natürlichen Planzenfamilien, 1887;
Dr. E. Warming's Den Sylematiske Bolanik, 1891; forgeneral morphology, etc., D. H. Scott's Introduction to Structural Botany, 1894; S. H. Vines' Student's Text-book of Bolany, 1902; and Prof. E. Strashurger's Practical Bolany, new English edition, 1912; for recognitional distribution, A. H. for geographical distribution, A. II. R.Grisebach's Die Vegelation der Erde, Drude's Handbuch der 1872: O.

necessary building up substances. Planzengeographie, 1890; for paleo-Reproduction is effected sexually and asexually; in the former case two Paléontologic Végétale, 1869-74; J. W. Dawson's Geological History of Plants, 1888; A. C. Seward's Fossil Plants, 1898; D. H. Scott's Studies in Fossil Botany, 1909. See also J. Britten and

Bottany, 1909. See also J. Britten and G. S. Boulger's Riographical Index of British and Irish Botanists, 1893.

Botany Bay (and suburb), an inlet on the W. of the co. of Cumberland. New South Wales, Australia. On its shore is the township of B. forming a suburb of Sydney. It was discovered by Cantain Caok in 1770 who landed by Captain Cook in 1770 who landed at a spot now marked by a monument and took possession for the crown. It received its name from John Banks, the botanist of the party, on account of the great variety of its flora. The tn. was fixed upon as a convict settlement, but the idea was abandoned and the settlement was made at Sydney instead. The first governor was Arthur Philipp, 1788. The trans-portation of criminals to New South Wales ceased in 1840.

Bot-fly is the name of any species dipterous insect of the family Estridæ. These flies are large and their, with very short antennee, and their larve are usually to be found in mammals. Gastrophilus equi is the gadily of the horse, which have its is irritated and licks them off, the

eggs on the annuals nairs; are noise is irritated and licks them off, the larvæ remain in its stomach until ready to pupate, then pass out and become mature external to their host. As the construction of the construction of the reindeer; Hypoderma bovis on the legs of cattle, and the larvæ often occasion warbtes or tumours under the skin of the back.

Both, Jan (1610-5/2), and Andreas (1609-50), Dutch painters, born at Utrecht, and early went to Italy, being two of the first, Dutch painters to come definitely under Italian influence. At Venice it is said that Andreas was drowned hin a canal. The two worked together, Jan painting the landscapes into hyphich Andreas painted the figures and canimals. Jan deals with the scenery of the Italian lakes in the manner of the Claud Lorraine. Both brothers and sexecuted atchings. Both brothers anlso executed raine. etchings.

otchings.

Botha, Louis (1862-10912), Borr general and statesman, in rst Premier of the Union of South Africa, son of one of the Voortrekkers, it was born at Greytown (Natal). He saw active service in savage warfare, and served as field cornet in 1887. Sc you after he settled in Vryheld district, which he represented in the Volksrighad of 1897. In the war of 1890 he sterved under In the war of 1899 he starved under Lucas Meyer, but he so non received higher commissions. Hele was in com-

mand of the Boers at Colenso and Spion Kop. During these conflicts he gained such high reputation that he was made commander-in-chief of the Transvaal Boers on the decease of General Joubert. After the fall of Pretoria he reorganised the Boer resistance with a view to continued guerilla warfare. This movement was successful in its aim, for the Boers resisted for three years. He was chief representative of his countrymen in the peace negotiations of 1902. He went to Europe with Generals De Wet and De la Rey in order to raise funds to enable the Boers to resume their former avocations. During the period of reconstruction under British rule, General Botha gave liberal to measures advice with regard which he thought would tend to the maintenance, order, and prosperity of his people in the Transvaal. After the granting of self-gov. to the Transvaal in 1907, B. was called upon by Lord Selborne to form a gov. In the next year he was present at the colonial conference in London. On this occasion he declared the wholehearted adhesion of the Transvaal to the British empire and his intention to work for the welfare of the country. Resigned on Dec. 14, 1912, on account of disaccord in his cabinet.

Bothie, originally denoted a humble cottage or hut, but later it denoted a barely furnished and generally uncomfortable dwelling for farm servants. The system prevails in the E. and north-eastern dists. of Scotland, and consists of building the outhouses (barns, stables, etc.) of a farmstead in the form of barracks in which the male servants reside. The cubic contents are generally disproportionate to the number of inmates, and the furniture is of a rude and uninviting

character.

Bothnia was in former times the name of a country of N. Europe which extended along the eastern and western coasts of what was then, as it is now, the Gulf of B. The eastern portion now is included in Finland, and the western in the Swedish province of Norrland.

Bothnia, Gulf of, is the name given to that part of the Baltic Sea between 60° and 66° N. lat., and 17° and 25° 30′ E. long. To the S. are the Aland Is.; the eastern shore of the gulf is part of Finland, the western and northern, number of small is., sand-banks, and Bothwell, James Hepburn, Earl of cliffs, or 'skaers,' but there are many (c. 1536-78), was the son of the good harbours. Numerous rivs, flow third earl, succeeded his father in Into the gulf from Sweden and Fin-1556. In addition to the family land; the alluvial deposit from these estates and titles he succeeded also has caused the land to encroach on to the hereditary offices, which in-

the sea in the upper part of the gulf. The contrary has been the case in the S.W., where the sea is gradually over-flowing the land. The salinity of the water is not great, and is less when the rivs. are flowing into it. In winter, however, the whole surface is generally frozen so hard that sledges can be driven over it.

Bothriocephalus is a genus of Cestoda, or tapeworms, which belong to the Platyhelminthes. The species have two weak and flat suckers, the body is segmented and the head has no hooks. B. latus is parasitic on man, and as its first stage occurs in fish it is found in countries where fish is not thoroughly cooked, as in Russia, Poland, Switzerland, and S. France. It may attain a length of 30 ft. liguloideus occurs in China and Japan

Bothwell, a town of Lanarkshire, Scotland, situated on the r. b. of the Clyde. It is a residential quarter for Glusgow. The riv. is crossed by a suspension

bridge which battle foug

under Monmouthand the Covenanters. in which the latter were utterly defeated in 1679. In the vicinity is the splendid Norman ruin of B. Castle. There is also a priory founded in the 13th century. The manse of B. was the bp. of Joanna Baillie (1762-1851),

dramatist and poetess.

Bothwell, Adam (c. 1527 93), Scottish divine, bishop of Orkney, 1562. On commission for revising Book of Discipline, 1563; lord of session, 1565. He was one of the four Scotch bishops who embraced the Reformation. He performed, after Protestant form, the marriage ceremony of Mary and Bothwell at Holyrood House, but soon afterwards deserted her party, and crowned and anointed her infant son, Charles James, at Stirling, 1567. B. was for a time suspended from the ministry by the General Assembly, Mary and the Earl of B. He exchanged a part of his bishopric of Orkney with Robert Stewart for the of Holyrood House, about abbey 1570. Imprisoned for a time for opposing Morton. On commission to frame a revised ecclesiastical settle-ment, 1572; one of the lords of articles at parliament, 1584. See Keith's Catalogue of Scotch Bishops, 1824; Burton's History of Scotland, iv., of Sweden and Lapland. The depth Burton's History of Scotland, iv., varies from 20 to 50 fathoms. Naviga- 1867; Mackie's History of Holyrood tion is rendered difficult by the House, 1829.

cluded that of the lord high admiral! of Scotland. He showed himself at the beginning of his career to thoroughly anti-English and he soon joined himself to the party of Mary of Guise, although he himself was a Protestant. He had a violent quarrel with Arran, a quarrel which originated in his appropriation of a sum of money which was sent by Queen Elizabeth to the lords of the congregation. He was employed by the Scottish courts on many missions, and in 1561 was sent from Paris by Mary Queen of Scots to summon parliament. He made peace with parliament. He made peace with various of his rivals, and although he had but recently been made a privy councillor he again was ordered to leave the city on the outbreak of riots between himself and his enemies. For a short time he suffered imprisonment, it being alleged that he had plotted with Arran against Mary. He broke prison, and although he again submitted to the queen, he was forced into exile owing to the predominance of the influence of Murray. In 1564 being captured on Holy Is. he suffered a short imprisonment again, this time in the Tower. He was recalled, however, to aid Mary in putting down the insurrection of Murray, and he now comes forward as the champion of Mary. Mary married to Darnley was gradually becoming more and more tired of her feeble husband. The murder of Rizzio in March 1566, marks the beginning of the complete ascendency of B., and Mary began to show a marked preference for him. He was made the most powerful noble in Scotland, and estates were showered upon him, and Mary showed her affection for him in many other ways also. She visited him at Dunbar; he was wounded, she rode forty miles to see him: and finally she was present with him when the final disposal of Darnley was arrived at, and he himself superintended all the arrangements which led to the blowing up of Kirk of Fields. B. stood his trial for the murder, but Lennox was practi-cally forbidden to attend, and B. was declared not guilty. He now made preparations for his marriage with Mary, and although his previous marriage was declared null and void, it is doubtful whether his marriage to Mary was legal at all according to the law of the Roman Catholic Church. On May 12, he was created Duke of Orkney and Shetland, and on the 15th, Mary and he were married according to the Protectory of the according to the Protestant rites. The nobility, however, quickly ralled together to effect his defeat and he

take place and B. parted from Mary, reached the Orkneys, and from there sailed to Norway. He was captured by the authorities and sent to Copenhagen. He managed to obtain the good will of the king, and all efforts to obtain his surrender were in vain. He still frequently corresponded with Mary, but as his restoration was impossible, Mary demanded a divorce, which she obtained in 1570. His later years were spent in solitary confinement which brought on insanity. He died on April 14.

Bothynoderes is a genus of coleop-Bothynoderes is a gonus of colcopterous insects of the family Curculionidæ. The species are usually prettily mottled, the common colours being grey, black, and white. B. albidus (or Curculio albidus) is about half an inch long and is white, with the central part of the thorax, a facile may forward the survey of the storay of the survey of the storay of the survey facia, and four spots on the wing-cases

black.

Botocudos, a barbarous tribe of S. American Indians of Eastern Brazil, inhabiting the E. Coast Range. Their name is derived from the Portuguese 'botoque,' a plug, with reference to the wooden plugs or discs worn in their lips. They are below medium height, broad-shouldered, and remarkable for the depth and muscular development of chest. Their features are broad and flat, with high check-bones, wide nostrils, and thick lips. They are of a light yellowish brown colour and have light yellowish brown colour and have the general yellow tint of Mongolic races. They wander naked in woods and live chiefly on forest products. They look upon the sun and moon as the bestowers of blessings, and they are abjectly afraid of spirits. At a burial fires are made round the grave to drive away evil spirits. They live in rough shelters of leaf and bast, seldom over 4 ft. in height. Efforts have constantly been made to annibilhave constantly been made to annihilate them, and the Portuguese regarded them more as wild beasts than as human beings.

Botosani, a tn. in Roumania, cap. of

the prov. of same name, 47 m. S.E. of Czernowitz. Pop. 31,000.

Bo-Tree, or Ficus religiosa, is a tree of the order Moracem: it is allied to the Banyan (q.v.), and is sometimes called the Peepul tree. It has long, sharply-pointed leaves from which rain drips off very readily, and grows in damp forests. The milky latex yields caoutchoue. Vishnu is said to have been born beneath this tree.

Botrychium is the name of a genus of ferns of the order Ophioglossacear which grow in temperate and tropical lands, and in Britain are represented by B. Lunaria, the common moonwort. The stem is a subterranean rhizome, the roots are fleshy, branched,

and produce no buds, and the leaves period he made his memorable exgrow so slowly that they take five plorations of the mounds of Konyears to show above ground. The yanjik and Khonsabad. He was prosporophylls are petiolate and bear a fertile and a sterile lamina, which are usually both branched. prothallus is a small, ovid body, with scattered root-hairs, and usually bear antheridia on the upper, archegonia on the lower, surface. The prothallus of B. virginianum remains fixed to the sporophyte for about five years.

Botryllus is the typical genus of Botryllus is the typical genus of tunicates of the family Botryllide, first observed by Gärtner and afterwards estab. by Pallas. The species are sub-marine, very small, soft, irritable, and contractile, and are found adhering to other bodies in bunches of ten or twelve arranged like rays of a star round a common centre. They are found in Europe, N. America and the Mediterrangen.

N. America, and the Mediterranean. Botrytis is a minute fungus to which what is called *mildew* is often attributable. The tiny plants appear as a brownish-white patch on the object they have attacked, but under a microscope they are seen to consist of upright brown stalks, branched at the tips, each branch bearing pale-coloured spores. They attack the fibres of vegetable fabrics, such as linen and cotton, when placed in damp places, seedling pines, lilies, decayed stems of various plants, and

decaying fruit.

Botta, Carlo Giuseppe (1766-1837),
It. poet and historian, born in Piedmont. Studied medicine in Turin, and became a physician in the Fr. army. In 1790 he was appointed member of the provisional gov. of Piedmont. After the incorporation of Piedmont with France he went to Paris, where, as member of the 'corps législatit,' he gave offence to Napoleon. After the Restoration he became rector of academies at Nancy and Rouen. In 1830 he was allowed to return to his native tn, and received a pension. He died in Paris. His early works are on Corfu, Dalmatia, and the American Rovolution; Histoire des peuples d'Italie; Storia d'Italia dal 1490 al 1814, consisting of Guiceiardini's work and his own continuation of it.

Botta, Paul Emile (c. 1805-70), Fr. traveller and archeologist, son of Carlo Giuseppe B., a celebrated Italian historian. In 1826 he accompanied an expedition of discovery round the globe which lasted three years. As physician to Mehemet Ali he accom-panied his expedition to Sennaar in 1830. He was subsequently appointed consul at Alexandria, consular-agent at Mosul, and in 1836 consul-general at Tripoli. In this situation he re-In this situation he remained for twenty years. During this

yanjik and Khonsabad. He was promoted officer of the Legion of Honour in 1845. His greatest work was Monuments de Ninive découvert et déscrit par P. E. Botta. He died near Poissy in April.

Bottari, Giovanni Gaetano (1689-1775), ascholarly Italian priest, born at Florence. He assisted in the publication of a new edition of the Vocabolario della Crusca, and was later appointed librarian at the Vatican. His writings are numerous, and includeworks on the catacombs at Rome, and

an edition of Virgil.

Bottego, Vittorio (1861-97), an It. explorer, in 1892 started from Berbera and reached the Upper Juba, which he explored to its source. Between ne explored to its source. Between 1895 and 1897 he explored the neighbourhood of Lakes Margherita and Rudolf, and the Sobat riv. system, but in the latter year was murdered in the Abyssinian Highlands by the Somalis. For an account of his first journey see his book Viaggi di Scoperta nell Cuore dell' Africa, 1895; for an account of the second see Seconda Spedicione Bottego, 1899, by Varmutelli and Citerni.

Varmutelli and Citerni.
Bottesini, Giovanni (1823-89), contrabassist, born at Crema in Lombardy on Dec. 24. He went on a concert tour in 1840 which extended to America. During this tour heestablished his fame as the greatest master of the double-bass fiddle. He directed the Italian opera from 1846 in Havana, Paris, Palermo, and Barcelona. He became director of the Barcelona. He became director of the Conservatory at Parma. He composed among other works four operasand an oratoria. One of his best compositions is his Méthode de com-

plète de contre-basse. Böttger, Johann Fredrich (1682 1719), porcelain manufacturer, prac tised alchemy until Augustus, elector of Saxony, employed him more pro-fitably in his pottery works. He was the first European to reproduce porcelains exactly like the Chinese. With state prisoners for workmen, he manufactured his 'red porcelain,' resembling Chinese 'boccaros' (teapots) at the fortress of Meissen. This was so dense that a lapidary could polish it like a stone.

Botticelli, Sandro, more properly Alessandro di Mariano dei Filipepi (1444-1510), a celebrated Florentine painter. He derived his name of B. apparently from his eldest brother, who was a troker in a fair way of business, and who seems to have taken charge of the boy; this brother was nicknamed Botticello. He seems to have been physically weak, and was probably at an early age apprenticed,.

his brother Antonio, who was a gold-smith, but having shown a great aptitude for painting he was apprenticed to the famous Fra Filippo Lippi. For eight years he remained under the guidance of this master, and was probably employed in helping to complete the frescoes which Lippi had been commissioned to do at Prato. In 1467 Lippi left Florence for Spoleto, and B. was left to do his work without the influence of the master. At this period he seems to have come under totally fresh influences, from which he learnt much that he would probably never have learned from Lippi. In 1470 appeared one of his great pictures, ' Fortitude, which is at present in the Uffizi. The realistic influence of this period of his life is also obvious in the paintings of 'Judith and Holofernes,' and Sebastian.' During this period he had also come into contact with a number events with sufficient of this world's of the painting schools of Florence, goods to keep him from penury and and had contracted the friendship of Leonardo da Vinci. A number of the Madonnas which are ascribed from this period to Sandro have been proved not to be by this artist at all, but by imitators of him. Sandro came also under the patronage of Lorenzo the Magnificent, and executed several works for him, in addition to incorporating many portraits of the Medici | family in some of his most famous lyric poetry, distinguished by gracepictures. His great patron, however, ful sentiment and style, was another Lorenzo de' Medici, who sometimes inclined to morbidity. He was related to the family of Lorenzo pub. also an admirable series of monothe Magnificent. For this patron B. graphs on Swedish men of letters painted his famous 'Primayera' His collected works have been pub. was related to the laminy of Lorenzo published as a second the Magnificent. For this patron B. graphs on Swedish men of letters, painted his famous 'Primavera' His collected works have been published by the painted sev, in six vols.; the best known are Nyare sanger, 1833, and Lyriska artists in the decoration of the chapel Ger. archwologist, after holding the was probably responsible for papal portraits which decorate chapel. Of his celebrated frescoes of the

of Sixtus IV. at the Vatican, and taken as the greatest in the life-work of the painter, and it is probably to learned compendia of interesting this period that we owe the production of another 'Adoration of the Magi.' From Rome he returned to surgeon, was born at Stradella, in the Florence, where he continued his labours for the next ten years. Leturer in obstetries and surgery at Amongst the works which he produced at this time are: 'The Magnificat,' 'Abundance,' 'Birth of Pontes,' 'Pallas and the Centaur,' was, however, obliged to resign his 'The Annunciation,' and 'The Last professorship in 1887, in which year

since his father was too poor to per-Communion of St. Jerome.' The death of Lorenzo the Magnificent led mit him to remain at home and do He would seem to have to considerable political disturbances spent his early apprenticeship with in Florence, but Sandro seems to have still continued his labours with his own patron Lorenzo, and to have executed a number of drawings for him. During the period which followed the execution of Savonarola we find that B. became a devoted follower of that friar, and all his works of this period are marked by the strong religious conviction which he seems to have felt. To this period are he Nativity ross.' After and 6th century the of him; we 47.G how ting on com-sts. Through mittees of his fellow artists. all his paintings there runs the vein of poetical and mystical fantasy. Side by side, however, with his capacity for strong religious convictions ran the rough and ready humour of the Florence of his time. He died in May, probably not very well off, but at all goods to keep him from penury and

want. Böttiger, Carl Vilhelm (1807-78), a Swedish author, was made professor of eathetics at Upsala University in 1856, and professor of modern literature two years later. He succeeded his father-in-law, Esaias Tegnér, bishop of Vexio, the greatest of Swedish authors, as a member of the Academy. He wrote principally though Nyare sanger, 1 Stucken, 1837-39.

Böttiger, Karl August (1760-1835). (1784),and ie prin. of the

(1791), where ith Wicland. was intimate with compen. Of the colorated rescoes of the mast intimate with Writing this period may be mentioned 'The Goothe, and Schiller. His inexhistory of the Life of Moses,' 'The haustible store of literary energy was Destruction of Korah, Dathan, and dissipated between studies on a Abiram,' and 'The Temptation of Roman lady's tollet, anet. Gk. sculptaken as the greatest in the life-work minous writings are now regarded as the painter, and it is probably to learned compendia of interesting

for his native tn. He was afterwards a member of the Chamber of Deputies and then took up his professorial chair again before he retired to San Remo, where he died. His work on the use of carbolic acid in operations was pub, in 1866; he was also noted for his skill in operative surgery. He was among the first to recognise how! parasitic organisms help to cause!

diseases.

Bottle (from Fr. bouteille (through) dim. of Lat. botta, a flask); from this is also derived the Eng. butt). The word denotes a vessel, usually of glass, with a narrow neck, for containing liquids. The first Bs. were probably made of skins. The art of making glass Bs. and drinking glasses was known to the Romans at least before the year 79, for these articles and other vessels have been found in the ruins of Pompeli. In the Iliad the attendants are represented as bearing wine for use in a B. made of goat's skin. The anct. Egyptians used skins for this Romans. In Southern Europe Bs. of skin are used for transport of wine, and in parts of Asia and Africa for carrying and storing water. The Egyptians also had vases and Bs. of stone, alabaster, glass, bronze, silver, and gold. The Phænicians and Romans made Bs. of glass and stone. Romans made Bs. of glass and stone, removed and anoth Reference to skin Bs. is made in the Some machines work N.T. in the phrase 'Put new wine in a closed tank insteinto new Bs., signifying that old Bs. age. Codd's machine being cracked and thin would easily of acrated waters, is burst from the pressure of the gas of the kind, but is more from the new wine. Bs. were made than that described. In England about 1558. A B. which contained two hogsheads was blown expressive of an ar at Leith in Scotland in January 1748. In modern times Bs. are usually made of glass. In Chicago Bs. made of paper were invented in 1887 and They are light, ble. The insides were largely used. cheap, and unbreakable. are fitted with a composition which is intended to resist the action of dyes, acids, and spirits, etc. Glass B. making is a flourishing and advancing industry and great developments have been made. In 1886 appeared Ashley's patent for making glass Bs. by machinery. A few years later screw-stopped Bs. were in universal A few years later use for aerated waters. Labour-saving machinery for filling has been introduced, and the latest developments are machines for corking, stopping, labelling, and washing. England the glass-making industry is chiefly carried on at St. Helens and Sunderland, and also in the 'Potteries' district. The work is very unhealthy on account of the chemicals used.

Bottle Chart, sec Ocean.

he was elected member of parliament | the hard outer skin of the fruit of the calabash-cucumber, which makes a useful water-bottle. The plant on which it grows is a member of the order Cucurbitaceæ, and is known as Lagenaria vulgaris.

Bottle-nose is a name applied to various species of cetaceous mammals of the family Physeteridæ and genus Huperoodon, which are closely related to the sperm-whales. These whales yield spermaceti and oil; they can dive very deeply and remain under water for a long time. H. rostratus is about 30 ft. long and is

found in the N. Atlantic.

Bottling Machine, the general term applied to a machine for filling bottles with any liquid, such as medicine, scent, spirituous liquors, etc., so that the air is excluded. bottle must first be prepared by a thorough cleansing with hot water and soda, followed by a final washing The common in pure cold water. form of machine is simple in construction. It consists of an open tank from which run siphon tubes, usually six in number. Below these runs a shelf on which the bottles rest, while lower still is a trough to receive waste liquid. The operator starts the machine by sucking the siphon tubes in turn and putting a bottle on each tube. As each bottle is filled, it is removed and another substituted. Some machines work by gas pressure in a closed tank instead of by siphonage. Codd's machine, for the bottling of aerated waters, is by far the best of the kind, but is more complicated

Bottom Heat, a term in horticulture expressive of an artificial temperature communicated from below by means of fermenting vegetable matter to the soil in which plants grow. is used in order to keep the temperature between the degrees of 60 to 90 F. in forcing vegetables, flowers.

or fruits.

Bottomley, Horatio W., became Liberal M.P. for Hackney in 1906. As a 'lay lawyer' he successfully defended his two cases of Regina r. Bottomley in 1893, in connection with the Hansard Union, which wound up in 1891, and Rex v. Bottomley, 1909, which was the cul-minating point of the proceedings against him in connection with the Joint Stock and Finance Corporation of which he had been chairman and which had gone into liquidation in 1906. As a journalist and newspaper proprietor he founded the Financial Times, and was connected with sev. other papers, becoming eventually proprietor of the Sun newspaper. This was taken over by the Globe Bottle Gourd is the name given to people and died shortly afterwards, while Mr. B. is at present acting editor of John Bull, the first issue of which appeared on June 9, 1906. He also founded a companion paper, Mrs. Bull. In addition to being perhaps the best 'lay lawyer' of his time and a successful race-horse owner, he sat in parliament as an o Independent Liberal, and attempted to popularise the phrase 'Business government.' His denunciation of the Party System ' in politics met with a more ready acceptance, but he resigned his seat in 1912.

Bottomry is a maritime term. When it is a matter of vital importance to raise money for the proper completion of a ship's voyage, and there is no time to communicate with the owners, and the master has exhausted every other means for raising money then he may 'hypothecate' the vessel, and, in some cases, the cargo, i.e. he may give a bond or written contract for the loan of the money advanced on the security of the ship and freight. This bond binds the owners to repay the loan within a limited time after the safe arrival of the ship, but if the ship does not arrive safely the money is not repaid. The holder of a B. bond has a right to be paid before a mortgagee, but will not be paid until claims for wages or salvage have been satisfied. Where sev. bonds have been given, the last-

comer takes priority over the others.

Bottrop is a tn. of Germany in the prov. of Westphalia. It has manufs. of gunpowder and machinery. Pop.

15,000.

Botzen, or Bozen, is a tn. of the Tyrol, Austria-Hungary, situated at the confluence of the Talfer and the Eisach, 35 m. N.N.E. of Trent. It has a church dating from the 14th century, and fine public squares; it is protected from the inundations of the Talfer by a dyke 2 m. in length, which serves as a promenade. in the midst of a rich fruit region, and is a well-known summer resort.

The site of the Roman Pons Drusi is supposed to Le here. Pop. 15,000.

Bouch, Sir Thomas (1822-80), civil engineer, was born at Thursley in Cumberland. His very earliest tastes were for engineering, and in 1839 he began his career After After

Stockthis he w. ton and and in 1849 became manager and engineer of the Edinburgh and Northern Railway, and it is to him that the Forth and Tay owe their 'floating railways.' He was the engineer of the Tay Bridge, finished in 1877, for which the freedom of the town of Dundee was conferred upon him. He was also conferred upon him. He was also made a knight. The disaster of the made a knight. The disaster of the was an anthropologist and writer. Tay Bridge in 1879 was the cause of He was employed by Napoleon in

famous French sculptor, born at Chau-mont. He studied in Paris under the younger Couston, and later in Rome. His best known work is the 'Fountain of Grenelle,' in Paris, while an eques-

trian statue of Louis XV. was destroyed in 1792. He also executed a

number of smaller works of merit. Boucher, François (1703-70), a Fr. painter, born at Paris. Studied at Rome, and became member of the Academy in 1734. In 1765 he was given a position as painter to Louis XV. He was an artist of much ability and was equally facile in the production of figure or landscape pictures. The number of his pictures and drawings is said to have exceeded 10,000, and he also executed engravings. He became director of the Fr. Academy. which post he retained until his

death. Boucher, Jonathan (1738-1804), an and political English clergyman writer. He was born at Blencogo, near Wigton in Cumberlandshire, but emigrated to Virginia about 1757, where he was engaged in teaching. Determining to take holy orders, he returned to England, and was ordained in 1762, and, in the same year, became rector of Hanover, King George co. He held this and subsequent charges until 1775, when he was obliged to resign, owing to his proclaimed Royalist views. Driven from the country by the Royalution, he returned to England, where he was presented to the vicarage of Epsom in Surrey, which he retained until the time of his death. It during until the time of his death. B. during his residence in America had been on terms of close friendship with Washington, intimacy only being broken by their differences regarding Americán

sequences of the American Revolution, 1797—a collection of some of his discourses delivered between 1763 and He devoted many of the last years of his life to the compilation of A Glossary of Archaic and Pro-vincial Words, which was uncom-pleted at the time of his death. Two unsuccessful attempts were made to publish this work.

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Boucher de Crevecœur de Perthes, Jacques (1786-1863), forn at Rethel,

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various missions to Italy, Germany, and Austria. After the Restoration he lived at Abbeville. He wrote poems, travels, and works in archeology. His chief work on the latter subject is De la Création. His long investigations on stone weapons and other re-mains of early human civilisation in tertiary strata made him famous.

Bouches-du-Rhône, a maritime dept. of S.-Eastern France, situated at the mouth of the Rhone. It has an area of 2000 sq. m. It consists of three arrons., viz., Marseilles, Aix, and Arles. The western portion, known as the Camargue, is a marshy and unthe Camargue, is a marshy and unhealthy plain. The Maritime Alps
slope down through the N. and E. to
the basin of the Rhone. The beautiful
Mediterranean climate is affected by
the mistral. The amount of arable
land is very small. Wheat and oats
are grown in the Camargue and the
plain of Arles, and olive trees are
largely grown in the N.E. The vine is
also cultivated. The salt marshes
employ thousands of very mand employ thousands of workmen, and the dept. produces more salt than any other dept. Iron is worked, and there are large coal and lignite mines. Among the chief industries are oil distilleries, metal founding, soap and

scaport of France. Shipbuilding is carried on here. The pop. is about 737,112.

Boucicault, D. (1822-90), Irish dramatist and actor, born at Dublin, and died at New York. Edu-Educated at University College, London, and before he was twenty years old he made an immediate success with London Assurance, at Covent Garden, in 1841. He rapidly produced other pieces, among them Old Heads and Young Hearts, Louis XI., and The Corsican Brothers. He made his first appearance as actor in 1852, in a play of his own, The Vampire. 1853-60 he was in America. On his return to England he produced the first of a series of Irish plays, entitled n the

ng in these pieces won for him a high re-

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expedition to the Hebrides.

he studied, often as pioneer, geoformations in Germany, logical Austria, and Turkey. His La Turquie d'Europe (1840) may be quoted from

a long catalogue of publications.
Boufarik, a tn. of Algeria, 23 m. S.
of Algiers by rail. Pop. 4621.
Boufleurs, Louis François, Duc de (1644-1711), a marshal of France who attained great distinction, and was descended from one of the oldest families in Picardy. Serving under Condé, Turenne, Créqui, and Catinat, he attained rapid promotion, and his marshal's baton in 1693. His masterly defence of Namur in 1695 against William III., and of Lille in 1708 against Prince Eugene received recognition by the king, and he was made a duke and peer of France. His ability true clearly shown by the ability was clearly shown by the munner in which he conducted the retreat from Malplaquet in 1709; his death occurring on August 22 at Fontzinebleau.

Bouflers, Stanislaus, Marquis de, son of the Marchioness of Bouflers, mistress of Stanislaus, King of Poland, was born at Lunéville in 1737. He was distinguished for his elegance of manners and conversation. He was destined for the church, but abandoned the idea and entered the military service. He emigrated from France to Prussia in 1792. His works consist of poems, travels, 'eloges,' and tales, and have been many times repub. In 1784 hereached the grade of maréchalde camp, and in 1785 he became governor of Senegal in Africa. His character is summed up in the following epigram, attributed to Antoine de Rivarre, 'Abbé libertin, militaire philosophe, diplomate chansonnier, emigré patriote.

Bougainville is the name given to the largest member of the Solomon Islands which belongs to Germany. Bougainville was a Fr. navigator of the 18th century. He landed here about 1766 when on a voyage of

discovery round the world.

Bougainville, Louis Antoine de (1729-1814), first Fr. circumnavigator, born in Paris. Studied law, circumnavibut entered the military profession in 1753. At the age of twenty-one he pub. a treatise on the integral calculus as a supplement to De l'Hôpital's treatise, Des infiniments petits. putation as an actor. He returned to In 1755 he became secretary to the America in 1875, and came back to French embassy in London. In the America in 1875, and came back to French embassy in London. In the England to play in The Jill in 1886, next year he went to Canada as His latest successes are Streets of captain of dragoons and aide-decondon and After Dark.

Boue, Ami (1794-1881), Austrian with the rank of colonel and the geologist, whilst studying medicine cross of St. Louis. He served in the Edinburch, came under the introck the Seven Years' War. He understuence of Robert Jameson, who intook the task of colonising the Falk-spired him to make a geological land Is., but the Fr. gov. gave it up expedition to the Hebrides. Later to the Spanjards. He then went on a Later to the Spaniards. He then went on a

voyage of discovery which lasted two century it was the chief seat of the years four months. Saw active Vandals. Under the Arabs it was service in the navy, became vice- named the little Mecca. The tn. fcl

Bougainvillea is a S. Bougainvilled is a S. American become a strong fortress and a port of plant of the order Nyctaginaceæ. The great commercial value. The Fr. flowers are arranged in groups of word for 'candle' is probably derived threes, and are surrounded by an from the name of the town, candles involuere of petaloid bracts, red or being first made of wax imported lilae in colour. B. speciabilis is a beought. Pop. 10,419.

Bouch Service (1592-178) leaders

painter, son of a shoemaker, was born Croisic, Lower Brittany. At an early at Carlisle on Jan. S, and when a boy assisted at his father's craft. Later professor. In 1727 he gained a prize he became a clerk in the office of the given by the Academy of Science for the clerk, but abandoned the prospect his paper 'On the best manner of of a law career, and wandered about forming and distributing the masta the country making sketches and live of Ships, and also prizes for Essays ing a Bohemian life. He never visited on the best method for observing the a school of art. In 1845 he obtained stars at sea,' and 'The best method employment as scene-painter at Man- of observing the variation of the chester and letter at Glasgow where compass at sea.' In 1729 he pub. chester and later at Glasgow, where compass at sea. he married a singer, Isabella Taylor. Essai d'optique su His abilities were recognised by Sir D. Macknee, who advised him to give up his work at the theatre for landscape painting. In 1849 he began a more the Academy of Science. In I earnest study of nature, working at went to Peru to measure a de Hamilton and Port-Glasgow. He also the meridian near the equator.

was chosen associate of the Royal: Academy in 1879, and member in 1896. He exhibited many pictures

moulds or glass tubes.

on the slope of Mt. Gurava, and is de-to read lectures on literature in the fended by a wall since the Fr. occupa- college of Clermont at Paris, and on tion. It is an ancient town, and was rhetoric at Tours. He became pre-the Saldae of the Roms. In the 5th ceptor of the two sons of the Duke

admiral in 1791. He was a senator into decay after the 16th century, and under Napoleon I., a Count of Empire, when captured by the Fr. in 1833 it and a member of the Legion of consisted of little more than a few Honour. Died at Paris. American become a strong fortress and a port of

Bough, Samuel (1822-78), landscape was regius professor of hydrography at In 1729 he pub. Essai d'optique sur la gradation de la lumière. He became professor of hydrography at Havre, and succeeded Maupertuis as associate geometer of the Academy of Science. In 1735 he went to Peru to measure a degree of

supplied landscape illustrations for books pub. by Blackie and Co. He became an associate of the Royal became an associate of the Royal control of the Royal became an associate of the Royal the meridian near the equator.

Bouguereau, Guillaume Adolphe (1825-1905), Fr. painter, born at La Rochelle. Studied art at the Ecole Rochelle. Studied art at the Ecole Royal and Rochelle. Studied art at the Ecole Royal (1825-1905), Fr. painter, born at La Rochelle. Studied art at the Ecole Royal (1825-1905), Fr. painter, born at La Rochelle. Studied art at the Ecole Royal (1825-1905), Fr. painter, born at La Rochelle. Studied art at the Ecole Rochelle. Studied art at the Ecole Royal (1825-1905), Fr. painter, born at La Rochelle. Studied art at the Ecole Royal (1825-1905), Fr. painter, born at La Rochelle. Studied art at the Ecole Rochelle. Studied art at th

characterised by much grace and case in the treatment of modern beauty. He pub. a vol. of sketches in 1886 in conjunction with E. A. 'The Four Divisions of the Day,' 'A Abbey. The Tate Gallery has his picture entitled 'Weeding the Pave' ment.'

Bougie, a cylindrical instrument made of waxed silk or other suitable material which may be passed into the gullet, urethra, or other passage for the purpose of dilation or examin. Legion of Honour in 1886, an officer ation. The term is also applied to a long and thin suppository shaped in moulds or class tubes. best in classical and antique paintings.

Bouhours, Dominique (1628-1702). Bougie, a scaport of Algeria, 120 m. Fr. critic, born in Paris. Entered the E. of Algiers. It is beautifully situated society of Jesuits, and was appointed of Longueville, who died in B.'s arms. He wrote an account of the death of his former patron. B. was sent to Dunkirk to the Romanist refugees from England, and he pub. sev. books during his missionary work there. Among these was Les entretiens d'Ariste et d'Eugène, a critical work on the Fr. language. Other works are La manière de hien penser sur les ouvrages d'esprit, Remarks and doubts upon the French Language, and a Life of St. Ignatius. It was his practice to publish alternately a book on literature and a work on some subject of piety. His criticism on Pensées ingenieuses des Anciens et des Modernes was the subject of much ridicule on account of its strange misjudgments and omissions. at Paris.

Bouillabaisse is the name of a Fr. dish, popular especially in Provence. It is composed of a large fish, to which is added sev. smaller ones cut up; onions, saffron, sliced tomatoes, olive oil, etc., are then put in, and the whole cooked in a casserole.

Bouillé, François Claude Amour, Marquis de (1759-1800), was a distinguished Fr. general, celebrated for many exploits before the era of the Revolution. He held liberal principles and sat in the first assembly of the Notables, and after making excellent though abortive preparations to assist the unfortunate Louis XVI. in pursu-ing his journey from Varennes after his flight from Paris, he quitted France and served under the allies. He died in London. His Memoirs of the French Revolution rank deservedly high.

Bouillon, a fortress in the prov. of Luxembourg, Belgium. Situated on the R. Semoy, 9 m. S.E. of Sedan. Pop. 3000. Here Napoleon III. of France spent the first night of his exile after the battle of Sedan, 1870.

Bouillon, Godfrey de (c. 1058-1100), one of the commanders of the first crusade, and the eldest son of Eustace II. of Boulogne and Ida, sister of Godfrey, Duke of Lower Lorraine. There are many legends woven round his name and deeds, and he was un-doubtedly a man of great personal strength and gallantry. Godfrey, or Godefroy, after the capture of Jerusalem, is said to have been offered the title of king, which he declined for that of defender of the holy sepulchre, refusing 'to wear a crown of gold where his Saviour had worn a crown of thorns,'

Bouilly, Jean Nicolas (1763-1842), the which Fr. author and dramatist, was born he is contradiction, however, in face of his contradiction, however, in face of his contradiction, however, in face of the contradiction is the contradiction. mencement of the Revolution he held sev. high offices under the new gov., and was largely responsible for the

He retired from public life in 1798; and devoted himself to literature. He wrote the musical comedy Pierre le Grand for Grétry's music, the opera Les deux Journées to Cherubini's music, and L'abbé de L'épée. Among other books he wrote the following: Causeries d'un Vieillard, Conles à ma Fille, Les Adieux du Vieux Content. Bouin, a port of Vendée, France

Bouin, a port of Vendée. France, situated 40 m. S. of Sables d'Olonne. Fishing is carried on. Pop. 3000.

Boulainvilliers, Henri de, Comte de St. Saire (in Normandy) (1658-1722), political writer and historian, works not pub. in his lifetime. Some of the chief are: Histoire de l'ancien Gouvernement de la France, Histoire de la Pairie de France, Etat de la France.

Boulak, or Bulak, is the port of Cairo, situated on the Nile; it is connected with Cairo by an electric tramway and forms a north-western suburb of the city. It formerly contained the famous Egyptological Museum, now removed to Cairo. The great national printing establishment, founded by Mehemet Ali, is situated at Boulak.

George Boulanger, Ernest Marie (1837-91), a Fr. general, born in April at Rennes. He entered the army in 1856, and estab. his reputation as a soldier by services in Italy Cochin-China, and in the Franco-Prussian War. He was during this latter campaign at Metz, but escaped to Paris, and fought there under the provisional gov. In 1880 he was made brigadier-general and given the command of an army corps, this advance being due principally to the influence of the Duc D'Aumale. He had represented France at the centenary of the Declaration of Independence in America in 1876. As director of infantry at the War Office, a post to which he was appointed in 1882, he made a name as a reformer. His reforms were alike pleasing to the rank and file of the army, but his great reputation was due to his attitude towards Germany in 1887. On all sides now he was regarded as the man who would avenge the defeats of 1870. In 1884 he had been commander of the army at Tunis, and in 1886 his position in the political world was recognised by his appointment to the post of war minister. As war minister he got rid of his former patron, the Due D'Aumale, erasing his name from the list of active generals. On all side^ iece of deli denied

suffer, however, organisation of primary education. by this rebuff, In 1887 he came out.

tters themselves,

His tremendous

of office with the ministry, and all and Northern Russia, and other though the populace clamoured for mountainous dists. of Central and his reappointment in the next cabinet, he was not appointed. He was, however, given the command of an army corps. B. was now the most popular man in France, and was urged to run for the presidency. In 1888 he was denrived of his command and taken off the list of active officers for various acts of insubordination. He immediately entered politics and started and agitation for the revision of the constitution. Most politicians now saw what this movement would end in. and even some of his moderate sun-country on the issue of a warrant for his arrest on a charge of treason. The Boulangist movement survived his voluntary exile for a little. In Oct., in his absence, he was condemned for treason. Finally, after settling in Jersey, he committed suicide in Sept. on the grave of a mistress in Brussels.

Boulangerite (named after one of its discoverers, Boulanger, a Frenchman), a non-crystalline mineral of the colour of lead. It exists in bacil-lary, amorphous masses, slightly granulated. The formula for B. is Ph.Sh.S. and the sp. gr. 8 to 6.

Boulay de la Meurthe, Antoine (1761-1840), Fr. politician, son of an agric. labourer, horn at Chamousey in the Vosges, on Feb. 19. He acquired a reputation as a lawyer and speaker, and supported the revolutionary cause. He rei

the Council of

known as an and of the Directory despotism. Under the empire he helped to comnile the Civil Code. Received the Grand Cross of the Legion of Honour, and the title of count. He was a member of Napoleon's privy council. He died in Paris. His publications include two books on English history.

Boulder is the chief in. of B. co., Colorado, United States. It is situated

at the foot of the Front Range on B. Creek. It is the centre of a large mining dist. It is served by the Union Pacific, and the Colorado and

North-Western railways.

North-Western Landaux, S. Boulder Clay (Ger. Blocklehme, or Grundmoränë; Swedish Krosstenslera; Fr. argile à blocaux) is a kind of clar It is very Scandifound Scandi-navia, Holland, Germany, Central

Southern Europe. It varies in depth from a few ft. to 20 or 30 yds.; as a rule the depth varies with the height of the place it is found in, the thickest deposits being in low-lying dists. It contains all sizes of stones. from pebbles to huge boulders, the stones found being local in character. They are generally worn smooth, and bear traces of having been subjected to great pressure. The B. C. takes the colour of the underlying rocks; thus the clay over Triassic and Old Red Sandstone rocks will be red; over carboniferous formations, black; over silurian rock, buff or grey; and over chalk formations, white. In some low-lying dists, the B. C. is arranged in what are known as 'drums' or 'sowbacks;' these are long parallel banks of which the general direction is in correspondence with the is in correspondence with the course taken by the boulders therein, and also with the marks, or strice, on the underlying rocks. Examples of such formations may be seen in Nithsdale and in the lower valleys of the Teviot and the Tweed. The crag and tail 'formation may be observed also in these and other regions. B. C. is often found piled up on the side of a prominent hill, the face of which faces the direction in which the boulders in the clay have travelled; this is known as 'crag and tall.' Examples of such are to be seen on isolated hills near Edinburgh, and notably in Edinburgh eastle. B. C. is unfossiliferous, save for foraminifera, which have been found in widely separated regions. Other names for it are 'Till' or 'Ground Moraine.' It is now generally believed to have been formed by glacial action.

Boulders, Erratic, are masses of rock sometimes washed out of the boulder clay which is itself worn away by the action of the sea. They are formed beneath glaciers, but these boulders are often found some distance away from their place of formation, as they are carried along by river streams. The borders of the Canadian lakes are covered with boulders which are sometimes carried for hundreds of miles by the river. The Labrador coast, again, is strewn with numbers of boulders, and these were either lifted up from the sea or brought down by glaciers, or else they fell from the steep cliffs. In N. America some of the E. B. are angu-lar, but most of them have been worn away by friction. In parts of the Baltic Sea the water becomes frozen, and when it melts, the stones that

carried netimes

it on to

the coasts of the surrounding coun-A boulder of considerable weight was used for the base of the statue of Peter the Great in St. Petersburg, this boulder having been

found near the city.

Boule (Gk. βουλη, advice, thence council') was a general term in anct, Greece for an advisory council. Such councils existed from Homeric times in most Gk. states, but the only one of which we have any detailed information is the Athenian B. For details of this see the articles on

GOVERNMENT and ATHENS.
Boulenger, or Boulanger, Pierre
Emmanuel Hippolyte (1837-74), Belgian landscape painter, studied in Brussels Academy and at Tervueren. Exhibited at Brussels exhibition, 1866, at Ghent, 1867, his pictures winning much notice. The institution of the 'Société Libre des Beaux-Arts' (1868) was largely due to his influence, also its journal, *L'Art Libre* (1871). In 1872 B. won a medal for his 'Allée In 1872 B. won a medal for his 'Allée des Charmes.' He exhibited 'En-virons de Tervueren' at the Salon (1873), and 'Spring-time in Brabant at International Exhibition at Ken-

sington, 1874. See Lemonnier, His-toire des Beaux-Arts en Belgique, 1881. Boulevard (Fr., cf. Ger. Bollwerk, Eng. bulwark), originally applied to the rampart or outer fortification of a tn. In France and Germany these ancient fortifications have frequently been demolished, levelled, and the broad space, thus obtained, planted with trees and used as a promenade. Hence the term now denotes a broad | designed for walking or The most celebrated Bs. avenue, driving.

are those of Paris.

Boulger, Demetrius Charles 1853), is an Eng. publicist and student of Oriental affairs. He founded the Aslatic Quarterly Review in 1885, and was the editor for the first five years. His political contributions to the 1902, etc.

Russian Interfor. After having been vice Consult Smiles' Lives of Boulton and governor of Tambov from 1887 to Walt.

1893, he was mude governor of Moscow. His chief, the Grand Duke Lat. bodena, from bulina, frontier line). Minister of the Interior.

Boulimia. or Bulimy, insatiable hunger (Gk. Bovs and Aimos), a state of ill-health due to various causes. The patient has a constant, morbid craving for food. Sometimes occurs

in nervous disorders.

Boulogne-sur-Mer, a scaport in the dept. of Pas-de-Calais, France. It is situated at the mouth of the R. Liane. on the Eng. Channel, 22 m. S.W. of Calais, and it is connected with England by a daily Channel service to Folkestone, It is the Bononia Gessoriacum of the Romans. Henry VIII. took the tn. in 1544, but it was restored to the Fr. in 1550. Napoleon I. mustered his arr 802, and a colum 1y, 176 ft. high, statue of pro-The Napoleon, commemorates his jected invasion of England. The cathedral of Notre Dame, in the It. Renaissance style, was erected (1827-66) on the site of the Gothic

cathedral, which was destroyed during the Revolution, and of which only the crypt remains. The chief exports are dried fish, wine, leather, watches, and textiles. The chief industry is herring, cod, and mackerel fishing; and there are manufs. of soap, pens, glass, carriages, and cement. It is a popular seaside re-ort in the summer. It is the bp. of Sainte-Beuve (1804-69) and Mariette (1821-81). Pop. (1901) 49,083. Consult Vivenot, Notice sur la Port de Boulogne, Paris, 1904. Boulogne-sur-Seine, a tn. of France

in the dept. of Seine, adjoining the Bois de Boulogne, Paris. It has linen bleacheries, chemical works, and perfume factories. Pop. (1901) 44,416.

Boulonnais, the name of a former div. of France, now situated in Picardy. Its cap. was Boulogne-sur-Mer.

Boulton, Mathew (1728-1809), Eng. engineer, born at Birmingham. He succeeded (1759) to his father's business of silver stamper and piercer. So great were his improvements and ex-Eng. reviews are invariably charactersions that in 1762 he removed his keen judgment. His works include: A new method of inlaying steel was England and Russia in Central Asia, one of his first achievements. He 1885: Life of Gordon, 1896; History formed a partnership with the great of China, 1900; India in the 19th James Watt (1775). They joined in Century, 1901; History of Belgium, improving coining-machinery, and produced a new copper coinage for Bouliguine, A. G. (b. 1851), is a Great Britain in 1797. That same ussian politician and administ year a patent was granted B. for his trator. In 1871 he was appointed method of raising water by impulse, judge of Tambov, and three years B.'s life-work was to promote the later entered the Ministry of the commercial interests of England.

Serzius, was assussinated on Feb. 17, that which marks the limit of land. 1905; B. in the same year took the The B. may be indicated by a post, place of Prince Sylatopolk-Mirsky as ditch, hedge, march of stones, road, or riv., or it may be indicated by refer-

ence to a plan, or to possession of which are of importance to the tenants, or by actual measurement. When property is divided by a road when property is divided by a road or riv., the middle line of the road or riv. is said to be the property; whereas a hedge or fence is taken to belong equally to the adjoining owners. The Bs. of this, and parishes depend in the result of the road of the roa depend upon anct. charter or custom. The Local Government Acts of 1888 and 1894 provided for the local reand 1894 provided for the local areas, subject in certain cases to the confirmation of parliament. The Reform Acts of 1832, 1867, and 1884 defined political Bs., which frequently differ from municipal ones. In law, the exact B., whether public or private is a matter. whether public or private, is a matter of evidence, and where there is no evidence, the court acts on presump-tion. The presiding authority of a local board in England, or of a police bor. in Scotland, finally defines the B., which is then publicly recorded. In Scotland, a bounding charter describes the limits of land. further information, refer to the Commission Reports of 1868, 1870, 1873, and 1888.

Bounds, Beating the, the popular custom of the 0 Ascenp

accompanied by his parishioners, and the masters and boys of the parish school, used to make a survey or perambulation of the important parish boundaries, which the boys beat with willow wands. Sometimes the boys them-selves were whipped at particular stations. This annual ceremony, held to preserve the limits of a parish, may be compared with the Rom. festival, Terminalia, celebrated on Feb. 23. In Scotland, alternative names are 'riding the marches' and 'common riding.' At Shrewsbury it was called the province of the state of the sta bannering,' and the custom was kept up till the middle of the 19th century. See Brand's Popular Antiquities.

Bounty, in political economy, a sum granted directly or indirectly by a government to producers, manufacturers, etc., for the purpose of encouraging the particular industry, usually taking the form of a subsidy on quantities of goods exported from the country. Bs., or subsidies as they are also termed, were used much in Great Britain under the former mercantile system, examples being those on the herring fisheries, which, it is said, cost the state more than the price of the herrings as sold in the open market; the linen export Bs., open market; the linen export Bs., abolished in 1834; and the corn export Bs., abolished in 1814. Foreign countries, which frankly adopt a protectionist standpoint, have, and still do grant, Bs. to stimulate industries

country apart from their commercial value, e.g. the French Shipping Bs., as a support for the navy; but, with one exception, the sugar Bs. (see Sugar and BRUSSELS SUGAR CONVENTION) state trade subventions usually take more indirect methods, in the form of rebates, drawbacks, etc. From the point of view of economics, Bs. are objected to as penalising the con-sumer, the taxpayer, to benefit an individual trade; as withdrawing capital to an industry which without the B. would decline, and should therefore be regarded as doomed to extinction, and, as proved by past history, have been in themselves unnecessary or even harmful, as in the case of the linen Bs. and herring fishery Bs. Apart from economic Bs., the word is applied to the money premiums formerly paid on enlistment for the army and navy in Great Britain and Ireland, which varied in amount during the great Napoleonic wars from £18 to over £20 a head. In the old militia forces Bs. of £2 were paid on enlistment. Bs., or money,' is paid to a mercantile ship's crew for salvage service, and pay-ments are made to the crew per head for slaves taken by a British ship from a slaver. Special forms may be mentioned, viz. the King's B., a donation of £3 granted by the sovereign to the mother of triplets.

Bounty, Queen Anne's, an eccles. fund, founded in 1703, when the tithes, etc., originally paid to the pope, and later to the crown, were reserved for this bounty. Its purposes are to augment small livings, to build parsonage houses, and generally to

make grants for eccles. purposes. Bounty, Mutiny of the. H.M. Bounty was an Eng. vessel sent out in 1787 to Tahiti, under William Bligh, to collect plants of the bread fruit tree for the W. Indian colonies. On the return Bligh's crew mutinied under his harsh treatment, turning him and the few who were loyal to him adrift. They finally reached land in safety. In 1808 Bligh was appointed governor of New S. Wales, but proved so tyrannical that he was soon dismissed. He returned to England and was made an admiral. Of the mutineers some returned to Tahiti and were captured and punished; the rest settled on Pitcairn 1s. (between S. America and Australia) in 1790. There were quarrels among the native Tahitians, and massacres took place, in which most of the Englishmen were murdered as time went on. Gradually, however, a little colony was formed under the surviving Englishman, John Adams, who died 1829. Lord Byron used this incident in The

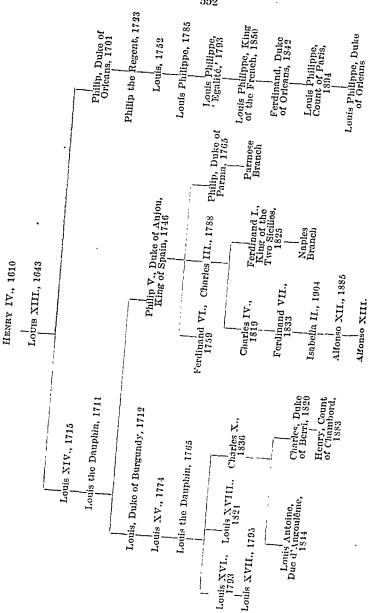
Is land.

Voyage.

Bourbaki, Charles Denis Sauter (1816-97), a Fr. general, born at Pau, educated at Saint-Cyr; entered the army in 1836, and served in Algeria, the Crimea, and Italy, distinguishing himself particularly at Alma and Inkerman (1854), and at Solferino (1859). In the Franco-Ger. War, he commanded the Imperial Guard, and took a prominent part in the fighting round Metz, after which he was sent on a secret mission to the Empress Eugenie in England. For a short time he was at the head of the army of the North. He met with a severe repulse at Belfort (1871), and on his retreat attempted suicide. He became corpscommander at Lyonsin the same year, and retired in 1881. Consult Grandin, Le Général Bourbaki, Paris, 1897.

Bourbon, a Fr. family which over three generations occupied the throne of France, has given monarchs to Naples, and still at the present day occupies the throne of Spain. The family seem to have taken their name from, and trace their descent back to, the early part of the 10th century. The name B. is taken from the territorial possessions of one Adhémar, lord of the barony of Bourbonnais, a ter.lying away in the centre of France and re-presented by the modern dept. of Allier. Adhémar seems to have been able to trace his descent from Charles Murtel, the great Carolingian. The family of B. early in its history became allied by marriage to the house of Dampierre, and in 1272 it became allied by marriage to the royal Capethan house, by the marriage of Agnes, heiress of the house of B., with the sixth son of Louis IX. The son of this marriage received the title of the Duke of B., but before the end of the 15th century this line had become extinct, and the duchy had passed into the possession of another branch of the family. With the great Constable, Charles B., the direct line from the first B. duke came to an end. A younger branch of the line took up the title in the person of Louis, Duke of Vendoue, and in direct descent from him was Antoine, King of Navarre by marriage, and heir to the B. title and name. His son was the famous Henry of Navarre who in 1589 became King of France as Henry Henry IV. was assassinated in Spain since.

For further details consult! He was succeeded by his great grand-Mutiny of the 'Bounty,' son Louis XV.. but before his death Barrow's Muliny of the Bounty, son Louis XV. but before his death Beechey's Voyage to the Pacific, or had succeeded in establishing the Bligh's History of the Bounty's present B. dynasty upon the throne of present B. dynasty upon the throne of Spain. Louis XV. died in 1774, and was succeeded by his grandson, Louis XVI., who met death on the scaffold during the furies of the Revolution in the year 1793. His son was nominally Louis XVII., and after the Napoleonic wars his brother was restored to the throne of France as Louis XVIII. He was succeeded by his brother. Charles X. Charles X.'s grandson was styled the Count of Chambord, and on his death in 1823 the supporters of the his death in 1883 the supporters of the B. family in France accepted as the head of the house of B. the Orleanist, Louis Philippe, Count of Paris. He died in 1894, and his position was taken up by his sons. Before this date, however, the Orleanist branch of the B. family had placed one of their number on the throne of France. The Orleanists were descended from the brother of Louis XIV. Amongst the more prominent members of that section of the family may be mentioned the famous, or infamous, Louis Philippe, 'Egalité,' whose son became King of the Fr. for a short time in the 19th century. The two other important branches of the family, as has been already mentioned, are the Spanish and the Neapolitan. The Spanish and the Neapolitan. The Spanish dynasty was founded practically by Louis XIV., whose scheme for a union between the two countries failed, but who succeeded in placing his grandson, Philip of Anjou, on the throne in the place of the dead Charles II. this sprang the alliances between France and Spain known as Family Compacts which influenced for some considerable time the politics of Europe. Philip of Anjou became King Philip V. of Spain, he was suc-ceeded by his son, Ferdinand VI., and he in turn was succeeded by his brother, Charles III. He was suc-ceeded in 1788 by his son, Charles IV., whilst his second son became King of the Two Sicilies. Charles IV. was deposed by Napoleon, this deposition being one of the chief causes of the Peninsular War, but after the wars reninsular War, but after the wars the throne was restored to the son of Charles IV. in the person of Ferdinand VII. In 1833 he was succeeded by his daughter Isabella, and his brother Carlos, Duke of Madrid, claimed the throne by right of Salie law, and started the series of risings which have, on and off, taken place in Spain since. Isabella abdicated in 1870, and was succeeded by her son 1610, and was succeeded by his son. 1870, and was succeeded by her son, Louis XIII., who died in 1613, and Alfonso XII. who died in 1885, and was succeeded by his son, the grand was succeeded by his posthumous son, monarque, Louis XIV. Louis XIV. Alfonso XIII. who is still on the telegrad from 1613-1715, and lived to throne of Spain. The first of the B. see France undergo many vicissitudes. family to have the sovereign rights of



III., who on his succession to the Spanish throne passed these rights on to his second son, Ferdinand I. Ferdinand, at one time deposed by Napoleon, afterwards regained his kingdom and took the title of King of the Two Sicilies. He was succeeded in 1823 by his son, Francis I., who held the same title as his father, and he in turn was succeeded by his son, Ferdinand II. Francis II., who succeeded him, was deprived of his possessions, which were incorporated in United Italy. Another branch of the family is the Parmese branch, which held the titles of Dukes of Lucca and Parma. The duchy of Parma came into the B. family in 1748, when by the treaty of Auchen it was conferred on the youngest son of Philip V. of Spain. It was held by this branch of spain. It was need by this branch of the family until 1860, when the duchies were annexed by Victor Emmanuel to the kingdom of Italy. Other branches of the B. family are the Vendôme branch, descended from a natural son of Henry IV., and the families of Condé, Conti, Montpensier.

Bourbon, Charles de (1490-1527), usually styled the Constable de B. He was the second son of Gilbert, Count of Montpensier, and was born in Feb. By a fortunate marriage with the heiress of the B. estates, and by the death of his elder brother, he became the wealthiest and most powerful noble in France. His conduct at the battle of Marignano (1515) gained for him the title of Constable of France, and he was also made the governor of Milan. But his great wealth and his vast influence quickly raised him up enemies at court, who, after the death Henry VIII., he agreed to help these monarchsagainst France, and although Francis I. interviewed him personally he still so distrusted him that he re-

the kingdom of Naples was Charles | Benvenuto Cellini; at least, he says so in his Life. After the death of B. Rome was sacked by his starving and mutinous troops.

Bourbon Island, see RIUNION.

Bourbon-Lancy, tn. of France, dept. Saone-et-Loire, noted for mineral springs, dating from Roman times; pop. about 2000.

Bourbon l'Archambault, a town of France, in Allier, cap. of the seigniory of B., from the lords of which sprang the royal family. Noted for mineral springs. Pop. 2500.

Bourbonnais, a former prov. of Central France, now corresponding mainly to the depts. Allier, Cher, and Nièvre. It formed the duchy of Bourbon from 1327 to 1523, when it was united to the Crown. In 1661 it was given to the house of Bourbon-Condé, who held it till the Revolution. Its cap. was Moulins. Consult Montégut, En Bourbonnais et en Foreg, Paris, 1881, and Nicolay, Déscrip-tion et Histoire du Bourbonnais, 1875.

Bourbonne-les-Bains, a health resort in the dept. of Haute-Marne, France, 20 m. E.N.E. of Langres. Its thermal springs (140-150° F.) were known to the Roms. under the name Aquæ Boivonis. The fine church dates from the 12th century, and there are ruins of the chateau of the Seigneurs de Bourbonne. Pop. (1901) 4014. Bourboule, La, a health resort in the

dept. of Puy-de-Dôme, France, on the Dordogne, 22 m. S.W. of Clermont. It is noted for its mineral springs. Pop. (1901) com. 1947.

Bourbourg, a tn. of France, dept. of Nord, S.W. of Dunquerque. Vil. and

canal of same name. Pop. 2500.

Bourchier, Arthur, an Eng. actorchemies at court, who, after the death Bourener, Arthur, an Eng. actorial fils wife, seem to have been led by manager, born 1864 in Berkshire. He the queen mother. The attacks upon was educated at Eton and Oxford, him led to the sequestration of his where he founded the O.U.A.D.C., estates by the king, and B. decided winning distinction in amateur theatthat he would throw his sword into ricals. His first professional appearance with Charles V. and as 'the melancholy Jaques' in Assurangement with Charles V. and as 'the melancholy Jaques' in Assurangement with Charles V. and as 'the Melancholy Jaques' in Assurangement with Charles V. and as 'the Melancholy Jaques' in Assurangement with Charles V. and as 'the Melancholy Jaques' in Assurangement with Charles V. and the Melancholy You Like It. Others of his Shakecharacters speare are Henry VIII., Macbeth, Macduff, Sir Toby Belch, and Falstaff. He toured he still so distrusted him that he re-'Toby Beich, and Falstall. He coured tused to rejoin him, and field to Italy with Daly's company in America, There he took part in the eampaign returning to England in 1893, and against France, helping to drive the Fr. out of Italy, but failing in the Miss Violet Vanbrugh, in 1894. He action before Marseilles, He also took acted with Sir Charles Wyndham as part in the battle of Pavia (1525). Joseph Surface in The School for The promise made to him by Charles Scandal. He took part in Money with V who some to have distructed him. V., who seems to have distrusted him. Sir John Hare, under whose managewas broken, but in 1526 he was given ment both he and his wife played the duchy of Milan. In 1527 his many important parts. In 1895 he the duchy of Milan. In 1527 his many important parts. In 1895 he troops, composed of Spanlards and produced his own adaptation of The Ger. Protestant mercenaries, clamour (thit Widow, which proved a greating for their arrears of pay, were led success. For a time he was Sir C. against Rome. Rome was attacked Wyndham's partner at the Criterion, and stormed, and in the storming of appearing with him in David Garrick. the walls Charles de B. was shot by In 1904 B. produced The Arm of the Law, adapted from Brieux's La Robe, Rome, and returning to Paris, be-Rouge. Both as tragedian and came one of the founders and later comedian his acting is of the highest rector of the Royal Academy of merit, and his name usually figures Painting. In 1652 he was appointed in benefit or gala performances. He court painter in Sweden. While has acted in plays by Pinero, Sutro, generally known for his historical and Barrie, and also adapted many paintings, his other work is of great continental plays for the Eng. stage.
As manager of the Garrick B. has produced, among other plays, The As manager of other plays, The produced, among other plays, The lericho Samson, Glass Walls of Jericho, Samson, Glass Houses, The Tenth Man, Find the Woman, 1912. Of quite recent years he has appeared with his wife at the Palace Music Hall in sketches such as The Knife and A Marriage has been Arranged.

Bourchier, John, see BERNERS. JOHN.

Bourchier, Thomas (c. 1404-86), an English archbishop, educated at Oxford. He became Bishop of Worcester in 1434; in 1443 was appointed to the bishopric of Ely; and in 1454 was made Archbishop of Canterbury. He afterwards became a cardinal and Lord Chancellor of England; holding the latter appointment from 1454 to 1456. See Lives of the Archbishops of

Canterbury, Hook.

Bourdaloue, Louis (1632-1704), born at Bourges, died at Paris. Entered the Society of Jesus when sixteen, and was later appointed professor of rhetoric, philosophy, and moral theology in various Jesuit colleges. He began preaching 1666, and had an immediate and notable success, 1669 he was recalled from the provs. to preach in Paris, where his eloquence soon caused him to be ranked with Racine, Corneille, and other great men of the period. His sermons at Versailles were so much appreciated that he was asked to deliver Advent and Lenten sermons on at least seven other occasions, whereas usually the same preacher never came more than three times to court. When the Edict of Nantes was revoked he went to the Languedoc to confirm now Catholic converts, and performed this mission most tactfully. Towards the close of his life he devoted himself largely to charitable institutions, where his discourses were gladly wel- of comed. Voltaire thought his ser- m. N.E. of Lyons. The tn. contains mons surpassed Bossuct's; they were the church of Brou (1511-36), founded certainly easier for the ma understand. B. was a far

Bourdeaux, see Bordeaux, trade in horses, cattle, poultry, and grain. Pop. (1906) com. 20,015. eelebrated French painter, born at Bourgeois, Sir Francis (1766-1811), Montpellier. He studied at Paris and English painter, son of a Swl-s

nerit. His masterplece is the Martyrdom of Saint Poter, in the merit. Louvre, where several of his other

works also are hung. Bourdon de l'Oise, François Louis, a Fr. revolutionist. He was born in the middle of the 18th century at Saint Remy, near Compiègne, and became a procurator in the parliament of Paris. He took part in the storming of the Tuileries (1792), and obtained a seat by deception in the Convention. He was instrumental in the execution of Louis XVI., the insurrection of May 31, and the destruction of the Girondists. He sided with the Moderates, and helped in the overthrow of the Terrorists (1294). He became a member of the Council of Five His Royalist leanings Hundred. brought him under suspicion, and in 1797 the Directory transported him to Cayenne, where he died soon after.

Bourganeul, a tn. in France, cap. of an arron. in dept. of Creuse. Castle famous for sheltering Prince Zizim.

Pop. 2750.

Bourg-Argental, a French tn., dept. of Loire, 17 m. S.E. of St. Etienne. Manufs, stuffs and silks. Pop. 3250.

Bourg-d'Oisans, tn. of France, dept. Isère, 18 m. S.E. of Grenoble, on the Romanche. Cold springs and mines

there.

ere. Pop. 1500. Bourgelat, Claude (1712-79), veterinary surgeon, at first a barrister and then a musketeer, founded in 1761 a veterinary school at Lyons, the first of its kind in Europe. He was of its kind in Europe. He was director also of the second, estab. in 1765 at Alfort. He made a thorough study of the anatomy of domestic animals, and raised an art that had been empirical to the rank of a science. Besides being the author of many excellent technical treatises, he

pt. ustria, with her r husband, Philip

orator than writer, and proposed in law, Margaret of Bourbon. The Bretonneau's ed. of his seruous is the Gothic church of Notre-Dame date back to 1505, and has a Renal-sance porch. There are manufs. of mineral waters, iron goods, pottery, tallow, and soap, and there is considerable trade in horses, cattle, poultry, and trade in horses, cattle, poultry, and

He studied clockmaker. Loutherbourg, and early won reputation for his landscapes. In 1776 he travelled in France, Italy, Holland, and Poland, becoming painter to the King of Poland. The latter knighted him, as also did George II., to whom he became landscape rainter 1774. he became landscape-painter, 1794. He became R.A. in 1793, and is famous for his bequest of a valuable collection of pictures to Dulwich College, and a large sum of money for the upkeep and extension of the galleries. Two noted works are galleries. 'Kemble as Coriolanus' and 'Hunting a Tiger.'

Bourgeois, Léon Victor Auguste (b. 1851), a Fr. statesman, was born in Paris, and educated for the law. He held a subordinate office in the dept. of Public Works from 1876 to 1882, was Prefect of Tarn from 1882 to 1885, and after being Prefect of the Haute-Garonne he returned to Paris to the Ministry of the Interior. He was made Prefect of Police in 1887, and in 1888 entered the Chamber as a Radical deputy for Marne. He was Under-Secretary for Home Affairs in 1888. Minister of the Interior in 1889, and Minister of Public Instruction in 1890. In 1895 he himself formed a refused to vote any supplies, and an appeal to the people bore out its action. He was Minister of Public Instruction in 1898, and in 1903 represented France at the Hague Peace Congress. He became a senator in 1905, and Minister for Foreign Affairs in 1906.

Bourgeoisie, a Fr. word, applied to the middle-class citizens of a tn. as separate from the nobility and the

Its university, which was ed by Beza, Calvin, and under | France. frequented by Beza, Amyot, was abolished at the Revolu-tion. The tn. has iron foundries, cloth and cutlery factories, tan-yards, and breweries, and there is extensive trade in wine, grain, hemp, cattle, etc. Pop. (1901) com. 46,551.

Bourget, Le, a vil. of France in the dept. of Seine, 6 m. N.E. of Paris. It was the scene of the defeat of the Fr. army in the Franco-Prussian War, Oct. 30, and Dec. 21, 1870. Pop.

(1901) 2,808. Bourget, Paul Charles Joseph, a Fr.

novelist and critic. He was born at Amiens in 1852, and studied at the Lycée at Clermont-Ferrand, and the college of Sainte-Barbe, Paris, where he graduated brilliantly in 1872. In the following year he took up journalism, and contributed articles to the Nouvelle Revue, Revue des Deux Mondes, the Renaissance, and other papers. Three volumes of verse—La Vie Inquiète, 1875; Edel, 1878; and Les Areux, 1881—were his first contribution to live the street of t tributions to literature. His critical studies, Essais and Essais de Psychologie contemporaine, pub. in 1883 and 1886 respectively, are singularly subtle in analysis, and are written in a polished, but not very virile style. His first novel, L'Irréparable, 1884, was quickly followed by others, Cruelle Enigme, 1885; Un Crime d'Amour, 1886; André Cornélis, 1887; and Mensonges, 1887, which placed Un Crime him in the front rank of modern novelists. They show an extraordinary insight into 'states of soul' and the morbid, cynical interest of a dilettante in psychological situations. He has travelled widely, and is a cosmoseparate from the hobbity and the travelled widely, and is a cosmoworking classes. The term is generally politan by instinct this father was a used contemptuously, implying smur respectability. The Fr. bourgeoisie woman—facts which account for his have long been opposed to the aristo- intimate knowledge of mixed society cratic party, but have themselves of all nationalities. He has pubbeen criticised by the socialist and impressions of his travels in Outrelabour classes for their mercenary Mer, 1895; and Etudes et Portraits, spirit and narrow outlook.

Bourges, the angient cap of Berry Disciple 1889. Nowreaux Partele Bourges, the ancient cap. of Berry.

Bourges, the ancient cap.

Bourges, the a Paris on the Canal du Berry, situated | Psychologie de l'Amour moderne, 1891; at the junction of the Yèvre and l'n Scrupple, 1893; Un Saint, 1894; Auron. It is the seat of an arch—Une Idylle Tragique, 1896; Recombishopric, and contains a large milimencements, 1897; Complications Sentary arsenal. The cathedral of St. timentales, 1898; Le Fantôme, 1901; Etienne, which was begun in the 13th—Monique, 1902; L'Etape, 1902; Un century, is one of the finest churches—Dirorce. 1904; Les Deux Sœure, in Europe. Other notable buildings: 1905; L'Emgré, 1907; Le Tribun, are the Palais de Justice, formerly the 1911. A collected edition of his works house of Jacques Cœur, Charles VII.'s—has been pub., and most have been banished silversmith, and the churches—trans. into Eng. He became a membanished silversmith, and the churches trans. into Eng. He became a memof Notre Dame. St. Pierre, and St. ber of the Fr. Academy in 1894, and Bonnet. B. was the cap. of the Gallie an officer of the Legion of Honour Bituriges. and was sacked by Julius in 1895. Consult Doumic. Ecrivains Cusar in 52 B.C., when its name was | d'aujourd'hui, Paris, 1894: and Lechanged to Avarieum. For a time, maître. Les Contemporains, vol. ili., under Charles VII., it was the cap. of Paris, 1886-9.

Bourgogne (Burgundy) was one of the largest and most important of the former provs. of France. It now forms the depts. of Côte-d'Or, Saône-et-Loire, and Yonne, and part of Aur It was watered by the and Aube. Rhone, the Scine, and the Loire, and was one of the most beautiful of the Fr. provs.; it has long been famous for its wines, as could be deduced from the names of some of its tus., Dijon, Macon, Autun, Auxerre, and Beaune. In the middle ages it gave its name to one of the parties in the civil war of 1410-35, the Bourguignons or Burgundians.

Bourgoin, on the Bourbre, in the dept. of Isère, France, 7 m. W. of La-Tour-du-Pin. Pop. (1901) com. 7279.
Bourgoing, Jean François, Baron de (1748-1811), a French diplomat and author, born in Nevers. For seven years from 1777 he held positions at Madrid, first as secretary of the legation, and in 1791 as minister pleni-He also held several potentiary. other diplomatic appointments with some distinction. His writings include Mémoires Historiques et Philo-sophiques sur Pie VI., and books on Spain, notably Nouveau Voyage en Espagne, with some translations from the German.

Bourg-St.-Andéol, a Fr. tn. on r. b. of Rhone, dept. Ardèche. Roman church and remains near. Pop. 3300. Bourg-sur-Mer, a Fr. tn. in Gironde,

near R. Dordogne, with remains of anct. fortifications and Roman walls.

Pop. 1500.

Bourignon, Antoinette (1616-80), Flemish mystic, born at Lille. She was a religious enthusiast from her carliest ! years, her marvellous imagination giving rise to strange hallucinations and visions. She strove for reform, and the restoration of the original purity of the Gospel spirit. Her doctrines won for her numerous disciples and as many foes. She was her country. banished from and I travelled in Belgium, Holland, and N. Germany. She also visited France, England, and Scotland, and preached Her followers soon dwindled away after her death, but her in-fluence was felt again in Scotland in the 18th century, and was denounced to algeria, in which he was similar in various Presbyterian general assuccessful. He refused to take the semblies between 1701-10. Her writings were pub, by Pierre Poiret, her disciple, at Amsterdam, 1679-81, his peerage and his command in the The following works of hers have been trans, into Eng.: An Abridge-ment of the Light of the World, A castle at Bournent.

Treatise of Solid Virtue, and The Restoration of the Gospel Spirit. A ford part div. of Lincolnshire, 95 m. critical account may be found in N. by W. of Lincolnshire, 95 m. critical account may be found in N. by W. of Lincolnshire, 95 m. Restoration of the Gospel Spirit. A ford part, div. of Lincolnshire, 95 m. critical account may be found in N. by W. of London. It has an early Hauck's Realencyklopädie, or Etude sur Antoinette Bourignon, by M. E. S., foundation of Augustinian canons of Paris, 1876.

Bourinot, Sir John George (1837, 1902), a Canadian historian, became clerk to the Canadian House of Commons in 1880. His works, which are mostly popular in character, cover the whole field of Canadian history. Apart from his historical books, the best known of his works is Parlinmentary Procedure and Practice in Canada (1884), which is a standard canada (1884), which is a standard work on the subject. His other works include: Canada, 1885, in the Story of the Nations series; Builders of Nova Scotia, Canada, under British Rule; Constitutional History of Canada. etc. He was K.C.M.G. in 1898.

Bourke, a tn. in New South Wales, Australia, situated on the Darling R., 500 m. by rail from Sydney. The district is noted for its abundance of

rich copper ore.

Bourke, Richard Southwell, sixth
Earl of Mayo (1822-72), British statesman, b. at Dublin, and educated there. He travelled in Russia; then entered parliament, 1847, and was Chief Secretary for Iroland, 1852, 1858. Appointed Viceroy of India, 1869, B. reorganised the finances of the country and promoted many useful public works. He helped to preserve the autonomy of Afghanistan. He was assassinated by a convict at Port Blair, Andamau Islands. See Hun-ter's Life, 1876; The Earl of Mayo in Rulers of India series, 1891.

Bourmont, Louis Augusto Victor de Ghaisnes, Comte do (1773-1846), a Fr. marshal. He was born at Chateau de Bourmont, in the dept. of Maineet-Loire. He fought on the side of the Royalists under Condé; he went into exile from 1793-99, and took an active part in the struggle in La Vendée. He was imprisoned on a charge of intrigue at Besancon, but escaped to Portugal. Later he won the favour of Napoleon, and for his services in Naples, Russia, and Germany (1808-14) was promoted to the rank of general. He vacillated berank of general. He vacillated be-tween Louis XVIII, and Napoleon, deserting the latter before the battle of Ligny. In 1829 he was appointed minister of war, and in the following year took command of the expedition the 18th century, and was denounced to Algeria, in which he was signally in various Presbyterian general as successful. He refused to take the

famous as having been the strong. The best edition of his Poemata has a hold of 'Hereward the Wake.' Pop. memoir by John Mitford.

Bourne, Edward Gaylord (1860-1908), an American historian, born at Strykersville. New York: he gradu-ated brilliantly at Yale (1883), where he subsequently lectured on political science (1886-8) and history (1895-1908). In the intermediate years 1908). In the intermediate years (1888-95) he was professor of history at Cleveland. Author of The History of the Surplus Revenue of 1837, 1885; Essays in Historical Criticism, 1901; Spain in America, 1904; Life of J. L. Molley, 1905. He also translated The Narrative of De Soto, 1904, and The Voyages of Champlain, 1905.

Bourne, Francis (b. 1861), Roman Catholic cardinal, was, after his ordination project.

Catholic cardinal, was, after his or-dination, priest at Blackheath, Mont-lake, and W. Grinstead in succession. He was the founder in 1889, and the first head, of a theological seminary in the diocese of Southwark, of which he was made bishop in 1897. He had previously, in 1895, received the appointment of domestic chaplain to the pope. When Cardinal Vaughan died in 1903 he succeeded him as R. C. archbishop of Westminster, and is now head of the Eng. Rom. Catholic Church. Created Cardinal 1911.

Church. Created Cardina A. Bourne, Hugh (1772-1852), the founder of the sect of Primitive Methodists. He was born at Fordhays Methodist local preacher, but his zeal
for open-air meetings did not meet
with the approval of that body, and
his repeated defiance of the resolutions of the Wesleyan Methodist Consionally written in 2-4, but generally ference resulted in his expulsion in 3-4 time; as a musical form they from the society in 1808. His evan- are often found in the works of the gelical style of preaching was ex-more anct. composers, such as Bach, tremely popular, however, and he Bourrienne, Louis Antoine Fauvelet gathered round him many followers, 'de (1769-1834), a Fr. diplomatist; an through which he estab, a new denomination, which adopted the name of Primitive Methodist, in 1812. The first chapel was founded at Tunstall in 1811, and the first annual conference at Hull in 1820. He visited Scotland, Ireland, Canada, and the U.S., and before his death the members' roll numbered 110,000. He pub. the History of the Primitive Methodists, 1823, and founded The Primitive Methodist Magazine, 1824. Primitive Methoaist Mayatta, Sec J. Walford, Memoirs, 1855.

Bourne, Vincent (1695-1747), Eng.

classical scholar and poet. Went from Westminster to Trinity College, Cambridge, finally becoming a master in his old school. Pub. Lat. poems of real poetic as well as linguistic merit. Many are translations, and often surpass their originals. His pupil,

Bournemouth, a watering-place and winter resort on Poole Bay, off the coast of Hampshire, England, 25 m. S.W. of Southampton. It received its charter of incorporation in 1890, and is included in the parl, bor, of Christ-church. Its sheltered position in a pine valley, and its even temp., has made it a favourite winter resort for The sanatorium for coninvalids. sumptives was built in 1855, and there are numerous hospitals and convalescent and nursing homes. the churchyard of St. Peters are buried Godwin, Mary Wollstonecraft, and Mary Shelley. It has a fine and Mary Shelley. It has a fine stretch of sands, parks, winter gardens, a pier 800 ft. long, and a golf course. Pop. (1901) 47,003.

Bournonite, a mineral composed of lead and copper. It is opaque, of a dull grey colour, with bright metallic lustre. It is first mentioned by Philip Rashleigh in 1797; later, in 1804, by the Comte de Bournon, from whom it derived its name, though Bournon himself named it Endellion, after the place in Cornwall where it was first found. It is also to be found at Neudorf in the Harz, Germany, and a

few other localities.

Bournville is the name of an estate in the neighbourhood of Birmingham. Methodists. He was born at Fordhays It is conveyed to trustees by Mr. in Staffordshire, and began life as a George Cadbury, of cocoa and chococarpenter. He became a Wesleyan late fame, and is a garden city for

early friend and secretary of Napoleon He was born at Sens and became intimate with Napoleon at the military school at Brienne. He became secretary of the embassy at Stuttgart, 1792; secretary of Napoleon, 1797, whom he accompanied to Italy and Egypt. He was appointed a councillor of state in 1801, but was dismissed from office in the following year on a charge of peculation. 1804, however, he was sent as charge d'affaires to Hamburg, but was re-called on account of his dishonest transactions, and was obliged to refund a million francs to the public treasury (1810). He then described Napoleon and supported the Bourbons, and sat in the Chamber of Representatives (1815). After the his revolution of 1830, he went out of Cowper, ranked him as high as Ovid. mind and died in a lunatic asylum Lamb also has praised his Lat. verse, at Caen. His Mémoires sur Napoléon (10 vols., Paris, 1829) are unreliable (logist (1812-77), born in Norfolk.

and spiteful.

Bourrit, Marc Théodore (1735-1815), a Swiss artist and naturalist, born at He made numerous excursions in the Alps, and devoted all his energies to their study. He was the first to make an attempt to climb Mont Blanc, which he did in 1784, but he did not succeed until three years later, after Balmat and Saussure had done so. His chief works are: Descriptions des Glacières, 1774: De-Descriptions aes Giacieres, 174; Description of the Pennine and Rheitian Alps, 1781; Observations made on the Purences, 1789; and Description of the Alpine Passes, 1803.

Bourse, the name applied on the Continent to a stock exchange, money market, or any place where merchants recent. The Parel Exchanges of

market, or any place where merchants resort. The Royal Exchange of London was originally called Gresham's Burse; it was built by Sir Thomas Gresham (1566-7) on the model of one at Antwerp. The Paris B. was designed by Brongniart (1808) and was completed by Labour (1808) Bouscat. A Proposition of the Bouscat.

Bouscat, a Fr. tn. in the arron. of Bordeaux, 2 m. N.W. of that tn. It is practically a suburb of Bourdeaux, and there are many country-houses, and a hydropathic establishment. Pop. 10,000.

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Boussa ...

Central A British

Nigeria. It was the scene of Mungo Park's death in 1806. Pop. c. 12,000.

Boussac, a tn. of France, cap. of an arron. in dept. of Creuse. Possesses a

arron. In dept. of Create. To Sessess a did to have adorned Zizim's apartments at Bourganeuf. Pop. 1500.

Boussingault, Jean Baptiste Joseph Dieudonné (1802-87), a Fr. cheunist. He studied at the School of Mines of Saint Etienne; served under General Bolivar in the S. American War of Independence: on his return to Independence; on his return France became professor of chemistry In 1839 he became a at Lyons. member of the of agriculture

des Arts et Mét was made gran

of Honour. experimental investigations in agric. science. Pub. Economic rurale, 2 vols., 1844; new ed. in 3 vols., 1860-4 and Bouts-rimes, a pastime in vogue 1887-91. This work was trans. into among hterary circles during the 17th

hood are coal mines, smelting works, and copper and iron foundries. Two endings. engagements between the Fr. and culed by Addison; see Speciator, No.60. the Austrians took place here on Boutwoll, George Sewall (1818-1905). April 28, and Nov. 4, 1792. Pop. (1900) 10,900.

was rector of Downham Market, 1817-50; and vicar of St. Mary Magdalen, [30] and vicar of St. Mary Magallen, Wiggenshall, Norfolk, 1850-5. B. founded the London and Middlesex Archaeological Society, 1855. Among other works of the kind he wrote Monumental Brasses and Slabs of the Middle Ages, 1847; A Manual of Brilish Archaeology, 1858; and Heradry, Historical and Popular, 1863.

Bouterwek, Frederick (1765-1828), Ger. poet and philosopher. Began by writing novels and verses, then turned to literary history and philosophy, adopting ideas first of Kant

B.; often as Thierry de Haarlem, er Stuerbout, though probably he has no connection with that family of painters. B. settled in Louvain (c. 1448), being appointed Portratuer-dere to the city (c. 1468). Probably a pupil of Hubert van Eyek; his work shows some resemblance to that of Van der Weyden. In 1468 B. finished two large pictures for Lonvain Town Hall. These (now in Brussels Gallery) illustrate a legend in Godfrey of Viterbo's chro-iola projeing the virtue

of justice, as ment of Oth powerful work 1468-72 painte Other works

Erasmus's Mai.,.. Church, Louvain; also 'Triptych of the Last Supper' (c. 1463). The shutters of this are now at Munich, the wines at Berlin. Many works formerly attributed to Memline are proved to be B.'s ('History of St. Ursula' at Bruges). See Crowe and n Cavaleaselle, Early Flemish Painters, He won fame for lus 1872; Journal des Beaux-Arts, 1897; MS. of Molanus, Historice Loranica-

ault, Belgium, on the Haine, 7 m. gives out certain rhyming words, and W. of Mons. In the translation the rest of the players could are coal mines specifics were using the given words as their rhyme endings. The amusement was ridi-

an American lawyer and politician. He was born at Brookline, Massachu-Boutoll, Charles, British archeo- setts, was called to the bar in 1862,

and became a leader of the Demo-1 The History of Devonshire Scenery, cratic party in his state. He was pp. 159-68. Pop. under 2500. chosen to the legislature seven times between 1842 and 1851, and was family of mammals included in the elected governor for two successive order Ungulata and of ruminant years, 1851-2. In 1854 he joined the habit. The family consists of ante-Republican party; organised the new lopes, sheep, goats, and oxen, with dept. of Internal Revenue, 1862; their different species and varieties, elected to the Courges 1862; one of but the different species and varieties, are not Republican party; organised the new dept. of Internal Revenue, 1862; elected to the Congress, 1863; one of those who conducted the impeachment of President Johnson, 1868; Secretary of the Treasury, 1869-73; a senator for Massachusetts, 1873-7. He was secretary of the Massachusetts Board of Education, and in 1900 president of the Anti-Imperialist League. His publications include Educational Topics and Institutions, 1859; Speeches and Papers, 1867; The Lawyer, the Statesman, and the Soldier, 1887; Reminiscences of Sixty Years in Public Affairs, 1902.

Bouvardia is the name of a genus of plants which grow in Central and S. America, and belong to the order Rubiacea. They are cultivated in England as ornamental greenhouse

Bouxwiller, or Buxhwiller, a tn. of las an anet. cathedral. The trade is Lower Alsace, in the dist. of Saverne. It has brick and tile and chemical works, and manufs. of candles and cotton stuffs. Pop. 4000.

Bouzas, a tn. in Spain, situated in slightly from Lycoperdon. Many

the prov. of Pontevedra.

by a team of eight oxen.

Boves, a tn. in Italy situated at

enays, and againet, due to the degrada- are used respectively of the right and tion of the neighbouring Dartmoor left sides of the vessel, looking forgranite. The layer is from 200-300 ft. ward, it is possible to speak of the thick, and extends from B. T. to starboard and port Bs., which mean, Newton Abbot. The latest investiga- of course, at the stem. tions go to prove that the geological Bow (Fr. archet, Ger. bozen, It. area) formation closely resembles that of is the name given to the implement the Bournemouth Beds or Lower Bag-, by means of which stringed instrushot. The clay extracted is very means of which stringed means shot. The clay extracted is very ments, as the violin, are made give valuable, and largely used for pipe forth their tone. It is made of a thin and notter's clay. The lignite or staff of elastic wood tapering slightly 'B. coul' (worked since 1714) is to the lower end, from 29:134 to sometimes burned in the local kilns, 129:528 in, in length. It is divided, as but is not economical. See Clayden's a whole, into five parts; the stick, the

but the different sub-families are not sharply defined and easily separated from one another. They occur in all parts of the old world, but are not native to Australia and S. America. They are artiodactylate and all the males have hollow horns; they are frequently present, but sometimes absent, in the females. Their chief distinguishing features are their horns, limbs, stomach, and teeth. About 45 genera and 200 species exist, of which most are antelopes.

Bovill, Sir William (1814 - 73), an Eng. judge, noted for his decisions in commercial cases. He became barrister 1841, and joined the home circuit. Q.C., 1855; M.P. for Guildford, 1857. The Partnership Law Amendment plants on account of their flowers. Act, which he helped to pass, 1865, is Heterostylism prevails in some species, always called 'B.'s Act.' B. was Bouvines, or Bovines, a vil. in the Solicitor-General, 1866, and vacated dept. of Nord, France, 6 m. S.E. of office the same year to become Chief Lille. It is noted as the scene of the Justice of the Common Pleas.

victory of Philip Augustus of France Bovino, an episcopal city in the over Otho IV., Emperor of Germany; prov. of Foggia, S. Italy. It is situated John, Kingof England; and the Count on the Apennines, 2100 ft. above of Flanders, in 1214. Pop. about 600, the sea, and 18 m. S.W. of Foggia. It Bouxwiller, or Buxhwiller at post bases and a second of the sea.

species are found in America, and a Bovate, or Organg, an old Eng. few in Britain; several are edible. land measure, being the extent of B. gigantea, the bull pulf-ball or land an ox could plough in a year, frog's cheese, has the form of a which varied from 8 to 24 acres; one-flattened ball, and is at first perfectly eighth of a carucate, the land ploughed white. Specimens have been gathered which measure 9 it. in circumference.

Boves, a tn. in Italy situated at Bow, of a ship, is the forepart or the foot of the Alps, about 4 m. from stem, which cleaves the water as the Cunco. There are marble quarries vessel moves. A naval architect and from mines in the district speaks of the 'U' or 'V' form Bs., Bovey Tracey, an Eng. vil. in Devon-referring to the shape of the section, shire, 81 m. W.N.W. of Teignmouth, whilst sailors describe various types with B. Station on the G.W.R. The as being broad or full, and lean or 'B. Beds' are a deposit of sands, fine Bs. As 'starboard' and 'port' clays, and lignite, due to the degrada- are used respectively of the right and

ferrule, the nut, the hair, and the his scientific research that Bowdoin head. The hairs, numbering from 110 College, Brunswick, Maine, was to 200 of the best white horsehair, are named after him. fastened to the lower end, and their tension is regulated by the nut,

Bow, see ARCHERT.

Bow, a dist. of London, 3 m. E. of St. Paul's in the metropolitan bor. of Poplar, and the parl. bor. of Tower Hamlets (B. with Bromley returning one member). It has stations on the N.L.R. and the G.E.R.

Bowden, a small tn. of S. Australia,

a suburb of Adelaide; pop. 3000. Bowdich, Thomas Edward (1791-1824), an Eng. traveller in Africa and

of St. Mary, W. Africa. He wrote sev.

z be made Travels to Gambia,

> sed 27'8

'uguese in

Angola and Mozambique, 1824. Bowditch, Nathaniel (1773-1838), an American mathematician and astronomer of Salem. Massachusetts. From early youth showed a bent for mathematics, but was bred to his father's business as a cooper, and later apprenticed to a ship-chandler. Between 1795-1803 went on five long voyages to perfect himself in practical navigation. Translation of Laplace's Mécanique Celeste, 1829-38, with annotations, is one of his chief works. To this (4th ed.) his son's Life is pre-fixed, 1839. This was elaborated into a separate biography by another son, 1865. He also pub. New American Practical Navigator, and was offered professorships at various American

universities, Bowdler, Thomas (1754-1825), the editor of the Family Shakespeare, in 10 vols., in which 'those words and expressions are omitted which cannot with propriety be read aloud in a family,' 1818. He also purified Gibbon's History of the Decline and Fall of the Roman Empire ' with the careful omissions of all passages of an irreligious or immoral tendency. His prudery prudery

rise to ti

Bowdom, sames (care of Howard)

min |

Bowel, see Intestines.

Bowell, Sir Mackenzie (b. 1823), Canadian politician, son of a carpenter at Rickinghall, Suffolk. His purents emigrated in 1833 to Belleville, Canada; here, when he grew up, the became a journalist and newspaper proprietor. In 1867 he entered the Canadian parliament as member for North Hastings; after holding this seat for twenty-five years he passed to the Senate. As a Conservative and leader of the Orangemen he took a mentioned to the Orangemen here. scientific writer, born at Bristol. He conducted a mission to Ashanti in being successively minister of customs, militia, and commerce, and from Dec. 1894 to April 1896 Premier. His p. cation

from

irom
Imade R.C.III.O.
Bowen, Charles Synge Christopher
(1835-94), Eng. lawyer and judge, born
Cleveostershire. A great classical in Gloucestershire. A great classical scholar, he became fellow of Balliol, 1858, and was called to the bar at Lincoln's Inu, 1861. While studying law he wrote for the Saturday Review, and later for the Spectator. He apand later for the Speciator. He appeared in the famous 'Tichborne case,' 1872, and was afterwards appointed junior counsel to the tresury, through the influence of Sir John Coleridge. His health suffered at this time, but as judge of the Queen's Beuch, 1879, he had comparative rest. He was raised to the Court of Appeal, 1882; became lord of appeal in ordinary, 1893; necessive the title baron. His last public service was presiding over the commission for enquiring into the Featherstone riots. B. wrote The Alabama Claim riots. B. wrote The Alubama Claim and Arbitration considered from a Legal Point of View, 1868; and Virgil in English Verse (Encid, 1.-1, and Ecloques), 1837. See Stewart Cun-ningham's Lord Bowen, 1896. Bowen, Francis (1811-90), Ameri-can writer on philosophy, born at Charleston, Massachusetts, and edu-vated at Hunyani Atter some years'

cated at Harvard. After some years' study in Europe, he returned to Cambridge, Massachusetts, and ed. the North American Review from 1843 to 1854. From 1853 to 1889 he was professor of natural religion and moral philosophy at Harvard. His writings include sov. books on philosophy and political economy, and Gleanings from a Literary Life.

Bowen, Sir George Ferguson (1821-

99), Eng. administrator and colonial governor, born in Ireland, and edu-cated at Oxford. He served as presi-Franklin he suggested that the phosphorescence of the sea was due to became chief secretary of gov. in the animalcules. It was in recognition of lonian Islands, 1854-9. Between 1859 the new constitution granted to that is. B. wrote Ithaca in 1850 (identifying it with Homer's): Mount Athos, Thessaly, and Epirus, 1852; Imperial Federation, 1886; Murray's Handbook for Travellers in Grecce

(7th ed. 1900); and Thirty Years of Colonial Government, 1889.

Bowen, Richard (1761-97), a naval officer, born at Illracombe. In April 1782 he was serving on the Foudroyant when she captured the Pegase off Ushant, and in 1794 took part in the attack on Martinique. He soon after received his appointment as com-mander, and in the same year became captain of the Terpsichore, 32-gun frigate, which he commanded till his death. After further operations in the West Indies he returned to Europe, and in Oct. 1796, off Carthagena, captured the Spanish frigate Mahonesa, which was much stronger than his which was much stronger than insown vessel, having 275 men to B's 182. The Terpsichore was greatly damaged, but by Dec. she was off Cadiz, where she encountered the French 36-gun frigato Vestale. Here again B. had 166 men to his opponent's 270, but again he won, though unfortunately wing to a gale though unfortunately owing to a gale he was not able to secure his prize. After the battle of St. Vincent, March 1797, B. fell in with the Spanish flagship Santissima Trinidad (130 guns) in a damaged condition, and fought her till twelve other Spanish ships appeared, when he escaped. His eventful career ended during Nelson's unlucky attack on Santa Cruz, July 1897, when B. was shot dead.

Bower, Archibald (1686-1766), a Scottish eccles. historian, educated at | Scottish eccles. historian, educated at Douay and Rome. He joined the Jesuit Order, 1706. B. was a member of the Court of the Inquisition in Macerata, 1723-6. He then returned to England and became Protestant; 1745 he rejoined the Jesuits, but protessed to have left the Church of Rome two years later. For these constant changes of religion he was severely attacked. He ed. Universal History, 1735-44; and wrote History the 1735-44; and wrote History of the

Pones, 1748-66.

Bower, or Bowmaker, Walter (1385-1449), the 'continuator of Fordun, abbot of the monastery of Saint and Hao, is one of the group of is. Columba, in the is. of Inchcolm, Firth in the Tuamotu Archipelago of of Forth. When John Fordun died, he Polynesia (Pacific Ocean), and is so had written his Scalichronicon to the named on account of its being bowdeath of David I., 1153, in five books. shaped. Lat. N.E. point, 18° 6′ S.; B. added eleven books, continuing long, 140° 51′ W. the history to the death of James I.,

and 1887 was successively governor of Queensland, New Zealand (put an end to Maori War), Victoria, Mauritius, and Hong Kong. He was knighted in 1856; 1888 was royal commissioner to Malta in connection with hence constitution granted to that -and an abridged manuscript-The Book of Cupar—in the Advocates Library, Edinburgh.

Bowerbank: James Scott (1797-1877), Eng. geologist, born in London. Succeeded with a brother to his father's distillery. Always interested in botany, astronomy, and natural history, he worked enthusiastically at the microscope, and formed a large collection of fossils. He founded with others' The London Clay Club,' 1836; others The London Clay Chub, 1830; pub. History of the Fossil Fruils of London Clay, 1840. Became F.R.S., 1842; part founder of Palæontographical Society, 1847. B. was much interested in the study of sponges, and on retirement from active life wrote A Monograpy of the British Spongiadæ (Ray Society, 1864-82). The British Museum bought his fine collection, 1864.

Bowerbankia is a low form of life, belonging to the family Vesiculariidae of the Polyzoa, and named after Bowerbank, the geologist. B. imbringle is common to the Science of bricata is common to the S. coasts of

England.

Bower-bird is the name applied to many species of the family Paradiseide, birds of paradise, which have a curious habit of building runs or playing-houses for their amusement. They are all found in Australia, and it seems likely that only the males construct these bowers. They are made of sticks and grass and are ornamented with bright feathers, flowers, shells, and any gally-coloured objects they can find. Other species construct their bowers between trees and decorate them with ferns an moss. Sericulus melinus, the regentbird, Chlamydodera maculata, the spotted B., and Ptilonorhynchus spotted B., and Ptilonorhyncous holosericeus, the satin B., are common species, while other genera are Amblyornis and Prionodura. See J. Gould's Birds of Australia, 1848-69.

Bowie-knife, an American hunting-knife, called after Colonel James Bowie (c. 1790-1836), who in a skirmish near Natchez, 1827, killed an opponent with a blacksmith's file; this file he afterwards fashioned into a double-edged blade, about a foot long and more than an inch wide.

Bow Island, called also Harp Is.

Bow-legs (Genu varum), a deformity

marked by separation of the knees appearing in person in the High when the ankles are touching. There Court and successfully arguing on child is rachitic or weakly in any way Sea Law and Sea Power, 1910. child is rachitic or wears, man, man, this condition may be almost permanent. The chief cause is rickets, an Eng. poet. He was born at King's surface the less unable to supwhich makes the legs unable to sup-port the weight of the body. Other causes are occupations of certain kinds (such as that of jockey or postillion), followed before the bones have grown and hardened properly: traumatism, etc. Any active, heavy child may become bow-legged if will usually effect a cure: in older patients an operation is needed. In a case caused by rickets diet and general hygiene are of the utmost importance. Rest on the back and massage are advantageous. The legs sometimes have to be bandaged together or to This deformity is the iron splints. very opposite to that known as knock knee (Genu valgum), which is, however. still commoner.

Bowles, Thomas Gibson (b. 1844), politician and author, was educated at King's College, London. From 1860 to 1868 he was in the Inland Revenue dept., which he left to take up journalism. He was the founder of From . Inland, Vanity Fair, which he afterwards He was war correspondent for the Morning Post during the Franco-German struggle of 1870-71, and witnessed the Balkan campaign of 1878. Elected as a Conservative for King's Lynn in 1892, he held that seat until In the same year he contested 1906. the City of London, but was defeated by Mr. Balfour. In Jan. 1910 he was again elected at King's Lynn, standing this time as a Liberal, but was rejected in the following Dec. Mr. B. was always noted in the House for his fearless independence, refusing to be bound by merely party considera-tions, and was often a ' rair trial' to his own side as well as his opponents.

is usually outward curvature of both, constitutional grounds that the Bank ls usually determined the state of four femurand tibia. It may occur in one of England was not entitled to deleg only, but is generally found in duct income-tax from dividends on both. At birth all infants are bandystock on a mere resolution of the legged, but during their first year a Committee for Ways and Means of gradual change comes, the cartilage the House of Commons and before the hardening to bone. In normal cases nardening to done. In normal cases late may actuanty been majored by the lower limbs thus get prepared to statute. His chief writings are: The support the body. Any attempt to Defence of Paris, 1871: Marilime walk too early must cause arrest in Warfare, 1878; Folsam and Jelsun, development of the limbs or an in-1882: Log of the Nervill, 1889; Decrease of the bandy condition. If a claration of Paris of 1856, 1900; and

Trinity College, Oxford. He became rector of Bremhill, Wiltshire, and prebendary of Salisbury Cathedral. In 1789 he pub. Fourteen Sonnels on Picturesque Spots. The graceful melody of his verse, his fresh interest allowed to be too much on its feet. in country scenes, and his tenderness Treatment must largely depend on of feeling, were in striking contrast to the cause of deformity and the anything that had appeared in recent patient's age. In young children classical poetry, and he was enthutreatment of the constitutional disease statically hailed by his young contemporaries. Wordsworth, Coleridge. and Southey. His longer poems, The Spiritof Discovery, 1801; The Missionary of the Andes, 1815; The Grave of the Last Saxon, 1822, etc., have not the merit of his sonnets. In 1807 he pub. his Life of Pope, with a memoir and critical notes, which gave rise to the famous 'Pope and Bowles' con-B. upheld that images troversy. borrowed from nature are more poetical than those from art, and that passions depicted in poetry should be elemental and therefore universal, and not those of transient fashious. Bowles' chief opponents were Byron, Campbell, and Roscoe, but he was supported by Hazlitt and the Black. wood. See Gilfillan's ed. of his works, with memoir, 1855.

Bowling, or the game of bowls, is an anet, and historic pastime intro-duced into England soon after the Norman conquest. The earliest mention of the game in writing is that of William Fitzstephen in the 12th century, who described a game similar to the modern one as having been played by the youth of London, while the carliest pictorial record is contained in an old 13th century MS, in the British Museum. In the 15th and 16th centuries the game was played in alleys, but the more popular form of the game that has survived is the one played in the open-air on greens. At one time the game was forbidden by parliament, as it was thought to interfere with the practice of arenery, with his political sympathisers by The game has been much with royalty

and the gentry of England in past days; Henry VIII. used to play it at Hampton Court, and Charles I. was also a keen bowler, and of course there is the well-known story of Sir Francis Drake, who was playing it when news was brought to him that the Spanish Armada was in sight, and he waited to finish the game before he went out and defeated the enemy. In the 18th century the B. green was a very favourite resort for men of fashion, while at the present day B. greens and clubs are to be found all over England and Scotland. The game is played on what are known as B. greens, specially laid plots of grass B. greens, specially talk planer, and from 40 to 60 yds. square, and usually sunk below the level of the land immed and plavers are the each has tw jack' is thrown up to one end of

the green, the object of the game being for the players to roll their balls being for the players to ren the sach as near as they can to it. The jack is a small white ball, about 4 in. in diameter, sometimes of ivory, but more usually of painted wood. The more usually of painted wood. bowls themselves are made of very hard wood, highly polished, and are from 6 to 7 in. in diameter, and thus are much larger and heavier than the jack. They vary in size and weight, the maximum size is 161 in. in circumference and about 3 lbs. in weight. but there is no minimum as regards size. They are made with a bias, that is, with one side round and the i tendency

line when

ourse, the players have to allow in rolling them. This is one of the most skilful parts of the game, as a good man can make his bowl avoid others that may be in his way in order to get his bowl near the jack. When all the players have finished their turns from one end, the distances from the jack of each bowl are measured, and a point is counted for each one nearer the jack than the nearest one on the opposing side. The jack is then thrown to the other end of the green, and the turns are taken again, and so on till the number settled upon to play to is reached. One member of a side is always known as the 'skip,' and he acts as captain and and takes the first shot at it. game has variations all over England. especially in the N., where it is played more after the Scotch style, although Lake Windermere, Westmoreland, the latter game differs a good deal m. N.W. of Kendal. Pop. 2662. the latter game differs a good deal from the Eng. style. In Scotland it is

before this nominal embargo was removed. Curling is a game almost exclusively played in Scotland or by Scots, and is very similar to bowls, except that it is played on the ice with flattened bowls made of stone with wooden handles. B. clubs in Scotland are far more numerous than in England, though the number in this country is increasing, especially round London, where there are already between forty and fifty. great many of the public parks and commons now have greens where the public can play free of charge, pro-viding, of course, their own bowls The game is played in and fack. America with ten pins instead of a jack, and is really no more than an claborated form of our pastime known as skittles or nine-pins. It is played indoors in a B. alley, and such places are becoming more common in this country. It is really a revival of an old Dutch game called long B., which was popular in England during the 18th century.

Bowling Green: 1. The county-seat of Warren Co., Kentucky, on the Barren R., and on the Louisville and Nashville Railroad. It contains many educational institutions, including Ogden College, 1877; Potter College for Women, 1889; and the Southern Normal School and Business College. It was incorporated in 1812, and re-ceived a charter in 1893. There is ceived a charter in 1893. There is considerable trade in all kinds of agric. produce, and also in horses and cattle. During the Civil War it was an important strategic point. Pop. (1900) 8226. 2. The county-seat of Wood Co., Ohio, on the Cincinnati, Hamilton and Dayton, and the Toledo and There are Ohio Central Railroads. foundries, canneries, cut-glass works

etc. Oil and natural gas is found, and it is an agric. dist. Pop. (1900) 5067. Bowman, Sir William (1816-92). an eminent oculist, born at Nantwich. He was professor of physiology at King's College, London, 1845-55: Fellow of the Royal Society, 1841; and of the Royal College of Surgeons, 1844; the first president of the Oph-thalmological Society, 1880-3. He won a great reputation by his Lectures won a great reputation by 11849. He on Operations on the Eye, 1849. He pub., in conjunction with Todd, The Phusiology of Man. directs the play of the others if neces- Analomy and Physiology of Man. sary; he generally throws the jack 1843-56, and his Collected Papers were edited by Sanderson and Hulke, with a *Life* by H. Power, 1892. Bowness, a tn. on the E. shore of

Bowring, Sir John (1792-1872), very popular, although, curiously Eng. statesman, traveller, and linguist, enough, the old law that rendered born at Exeter. He began life in a it illegal was repealed as late as merchant's office, but devoted much 1845, though it was played long of his time to languages, for which he the

had a remarkable talent. In after life ment. His most important work was he boasted that he had a knowledge of 200 languages, and could speak 100 essays upon the Origin of Printing, of them. He became the first editor which were pub. in 1774. He trans. of the Westminster Review, 1824, and trans. much foreign poetry, both bequeathed in his will a large sum of of them. He became the first editor of the Westminster Review, 1824, and trans. much foreign poetry, both anct. and modern, into Eng. In 1831 he was sent by the British gov. to inquire into and report on the financial isited

and | Parl., 1835-7 and 1841-9, and an active freetrader: British consul at Hong Kong, and superintendent of trade in China, bearing the British flag, was fired upon, and B., to avenge the insult, bombarded Canton without consult-ing the home gov. His action was very severely criticised, and a vote of censure was moved against him in parl. He retired on a pension in 1859, and died at Claremont. He wrote,

> Holland, People of hilippine ; hical Re-

miniscences, 1877, and other works.

Bowsprit is the boom or spar projecting from the bows of a sailing ship and also of a steamer, when its stem is of the cut-water type. It sup-

ports the jib-boom. An elongation of the spar is used to fix the foremast stay-ropes, which carry the sails.

Bowstring Hemp is a fibre obtained from various species of Sansevieria, tropical plants which are allied to the ophiopogon in the monocotyledonous order Liliacem. The fibre is used in order Liliacese. The fibre is used in making strings for bows. S. Zeylanica is the E. Indian B. H. S. quincensis comes from Africa; and S. fasciala is the banded bowstring hemp.

Bow Window, see BAY WINDOW. Bowyer, Sir George (1811-83), an Eng. jurist. He was b. at Radley, near Oxford, and was called to the bar in 1839; reader in law at Middle Temple, 1850; entered parl. and was elected member for Dundalk, 1852-68; and for Wexford Co., 1874-80; and left the Liberal party on account of his Home Rule principles. He was converted to Rom. Catholicism in 1850, and wrote on controversial subjects. His works on constitutional jurisprudence include, Commentaries on the Constitu-tional Law of England, 1841; and Com-mentaries on Modern Civil Law, 1848. Bowyer, William (1899-1777), a

printer, was educated at St. John's College, Cambridge, In 1722 he became his father's partner in business,

money to the Stationers' Company, to be used for decayed printers and compositors.

Box, or Buxus, is the generic name of several species of the widely-distributed order Buxacere. It is of great commercial value, as it is used in wood-engraving, in turning, and in the manufacture of musical and mathematical instruments. The 1849-53; knighted, 1854; governor of flowers grow in heads, one female Hong Kong, 1855. In 1856, the Arrow, being surrounded by many male being surrounded by many male flowers, and the fruit is explosive. The most common species in our gardens is B. sempervirens, of which the variety B. suffruticesa is used very frequently as an ornamental edging. B. balearica, the Minorca or Balearic box, is common to Turkey and the He wrote, islands of the Mediterranean; it grows Skelch of to a greater height than B. sempervirens, the wood is inferior and of a bright yellow colour. B. japonica is a smallish shrub common to Britain, and B, microphylla is noted for its small leaves.

numerous Boxall, Sir William, Eng. painter (1800-79), born at Oxford. He studied at the Royal Academy and in Italy the Academy and in Italy. He exhibited his 'Jupiter and Latonn' at the Academy in 1823; 'The Contention of Michael and Satan for the body of Moses,' 1824; 'Milton's Reconciliation with his Wife,' 1829; 'Lear and Corde" '1820; and 'Hope,'

Lear and Corue 1838. B. also for the Waverle. Rome, 1833, and afterwards devoted himself almost entirely to portraitpainting. He painted the Prince Consort, wearing his robes as master, for meinity House. He became R.A.. 1863, and Director of the National Gallery on Eastlake's death, 1865, but retired, 1874, owing to ill-health. He was knighted by the queen at Windsor in 1871. B. was also an honorary member of the Academy of San Fernando at Madrid.

Box Days, certain days in the spring and autumn vacation and Christmas recess, fixed by the Court of Session in Scotland, on which certain legal business, such as the lodging of pleadings, defences, and other law papers, may be performed to expedite proceedings in ordinary term time. The name is derived from the boxes in which the papers are placed.

Boxers, The. This name was given by Europeans to the members of one of China's numerous secret societies. and in 1767 his firm was chosen. This particular association, partly reprinters to the two Houses of Parlia-ligious, partly political, was organised

Its members were all strongly opposed to foreign influence, and their hostility was to a certain extent aggravated by demands of the Western powers for land and privileges in China. This, together with severe drought and famine, and troubles at court, urged them on to terrible excesses. Murder of a missionary met with but slight punishment; hence they organised an anti-missionary rising, 1900, and determined to destroy all foreigners in then country. They marched through China pillaging, destroying railways, murdering missionaries native Christians. The dowager-empress soon gave support to the movement, the imperial troops making no attempt to crush the rising At Pekin the B. murdered the Chancellor of the Japanese legation and the Ger. minister, Baron von Ketteler, and then besieged the legations. This intolerant behaviour gave rise to an intervention of all the European powers. Americans and Japanese also joined the allies for the purpose of suppressing the B. Hard fighting Hard fighting took place at Tien-tsin and elsewhere, but finally the relief party succeeded in freeing the besieged, August 1900. The court fled, and the allies were left in possession of Pekin until a peace was signed in Sept. 1901, by which China was obliged to pay a large indemnity to the foreign powers concerned. Consult for fuller details China under the Empress-Dowager, cerned. by Bland and Backhouse, 1910.

Box-hauling (navigation), a man-œuvre practised when a ship being close hauled refuses to tack, and there is not room to wear. The headsails are thrown aback to give her stern-way, the helm is then put alee, and she falls off, after which she is rounded to, and her proper course

not in vogue to-day, but at one time it was very common, and perhaps should really come under the heading In anct. times B. was of pugilism. practised at the Gk. games and the Rom. gladiatorial spectacles. Among both the Gks. and Roms., however, the naked fist was not used, but a kind of glove known as the cestus, of leather and sometimes loaded with iron or lead. It was a loaded with from or lead. It was a terrible weapon, and these fights frequently proved fatal. It is in England, however, that the 'noble art,' as it is sometimes called, attained a high state of proficiency. It first came into public notice in this country in the early part of the 18th century. James Figg opened the first B. booth

in 1896 by the prefect of Shantung, in London in 1719, and it continued to increase in popularity all through the reigns of the four Georges. Jack Broughton was the first man to think of using gloves for B., they were known as mufflers, and the same boxer also drew up the first set of rules. After Broughton's death the public interest in the ring flagged a little, but a boxer named Tom Johnson stepped into the breech, and the waning interest was rekindled till the flame burned more brightly than ever. From 1750 up to about 1820 the interest in the ring was enormous, all classes of society, high and low, took a part, as any one who has read the fascinating pages of Rodney Stone will know. Lord Byron has related in his diary how he had lessons in B. from the famous 'Gentleman' Jackson, who made a fortune out of pugilism. Mendoza the Jew, Jem Belcher. Humphreys, Tom Cribb, Spring, and Dutch Sam, were all famous fighters of their day. Gulley was a pugilist who afterwards entered parliament, and more extraordinary still was the case of Bendigo, who became a re-vivalist preacher, and of whom the story is told that he once used threats of a pugilistic nature to induce his congregation to give liberally to the collection. Since about 1820 the ring has been shorn of much of its glory, and the days of the 'Corinthians,' the rich patrons of the ring, are now over. From 1850-60 public interest was rearoused by the B. of such men as Sayers and Heenan, Broome and Mullins, but it has never regained the tremendous hold it once had on the people. Other sports have become more popular, and these being of a better class, the crowd that follows the prize ring is not always a desirable one, although, of course, many gentlemen still take an interest in B. Boxing is the method of fighting governing body for the better class with the fists either with or without sportsmen who now patronise this gloves, though the latter method is sport, and the Belsize Boxing Club not in vogue to-day, but at one time is by far the heat in London. is by far the best in London. Among boxers of recent times may be men-tioned Jem Corbett, J. L. Sullivan, Jetfries, Fitzsimnons, Tom Sharkey, Gunner Moir, and Bombardier Wells of the white men, and Peter Jackson, Sam Langford, and Jack Johnson of the negroes. The latter is the present champion of the world, since his defeat of Jeffreys. His proposed fight with Bombardier Wells was stopped by the authorities beforehand. The present rules for boxing are those drawn up in 1867 by the Marquis of Queensberry, and all contests now are held under what are known as 'the Queensberry Rules.' The ring is roped in, and usually 24 ft. square. The men wear light boots or shoes, with

shorts and vests. for long ones it is sometimes longer. The men either fight a certain number of rounds and score by points, when the last round is four minutes or the fight is to a finish, that is, until one man is 'knocked out.' If a man cannot come up when time is called for a new round, or cannot resume when knocked down before ten seconds, he is 'counted out,' and loses the contest. The referee is the one to decide all points, though sometimes he is assisted by two judges, though he always has the option of the casting vote, should the judges disagree. Each competitor is allowed a second and one attendant, but no coaching or advice is allowed to be given to the combatant during the progress of a round, and any boxer who may fight unfairly, by hitting below the belt, hitting with the open clare believe the progress of the progress o glove, holding the ropes or wrestling, may, be disqualified by the referce, who has power to stop the fight at any time, or even if one man is getting too severely punished he can declare too severely punished he can declare the contest over. The prin weights are bantam weight, light weight, middle weight, heavy weight, and welter—or any—weight; and perhaps a brief explanation of some of the more general terms used in B. may be useful. 'Time' has already been december and it is also used of a blow. scribed, and it is also used of a blowone delivered at the most advan-tageous moment. The 'upper cut' is a blow given with either the right or left hand on the face of an opponent when he is leaning forward to deliver a blow at you. A cross counter is to hit your opponent with one hand at the moment he is trying to hit you with the other, and this by a little skilful dodging can be made a very effective blow indeed. 'Hitting below the belt ' is illegal: a blow must be either on the upper part of the body or the head, the arms, of course, can be hit in whatever position they may happen to be. 'Out-fighting' is to happen to be. 'Out-fighting' is to keep at more than arm's length of your adversary, and 'in-fighting' is to keep the contest within that distance. To break ground is to move swiftly to one side when your rival opens his attack, which puts him off; his reach without moving your feet. first regularised Boyardom on its A 'counter hit' is not unlike the present footing.

cross counter, it should be so timed Boyaux are winding trenches form-

Each round lasts as to touch your man at the very three minutes, with one minute's rest moment he is reaching forward to hit between each for short contests, but you, and properly carried out this is a very telling blow. A 'side step' is the act of bending down and changing the feet to the right or left very quickly as your opponent attacks. To head off 'is to start the attack: the right hand is usually held across the breast and the left used to lead off with. A 'quick return' is most effec-tive, and this must be done the moment you have been hit. A 'sharp rally ' is a rapid exchange of blows without pause or draw back on either side. To 'parry 'is to guard or ward off a blow with the arm; and finally, a 'knock out blow' is one which finishes the fight if it keeps your opponent on the ground while ten seconds are counted. For those who would study the book-lore of this art closer we can recommend Boxing, in the Badminton Library, and John-stone's Modern Glove Fighting, while an interesting old book on the subject is Boxiana, or Sketches of Ancient and Modern Glove Fighting, by Pierce Egan, published in 1824. Those who would read an expression of continental opinion will find an intensely

dramatic B. sceno, reflecting adversely on the 'noble art,' in Victor Hugo's novel By the Kiny's Command.

Boxing-Day, one of the Eng. bank holidays (Dec. 26). On this day the annual presents or Christmas boxes

were usually made to employees.

Boxtel, a tn. near Bois-le-Due,
Holland, where the Fr. defeated the Eng. and Dutch allies, 1691. Here Wellington, then Colonel Wellesley, witnessed his first battle and dis-tinguished himself in covering the retreat.

Box-thorn, or Lycium, is a genus of clanacer found in Europe and Solanacere found in America, consisting of thorny shrubs L. curopæum grows in and trees. Europe, L. fuchsioides in S. America, and L. rulgare in N. America.

Boyaca, a in. in the dept. of Boyaca, Columbia. Here Bolivar defeated the

Spaniards in 1819. Pop. 7000.

Boyar, or Boyard, an anet, order of Russian nobility. In early times the Bs. formed the council of the prince, and the title was only partly hereditary. Some of them were chosen from the prince's personal attendants and and leaves a good opening for your trusted warriors, others probably from own attack. To 'break away' is a leading men among the people. As command of the referee when the men time went on the military and civil are apt to clinch or get too close. A Bs. drew apart, and the former, as 'duck' is to lower your head just as in France, became the 'noblesse your opponent leads off at it, and so d'espée,' and were termed courtiers, avoid his blow, while to 'draw back' while the latter devoted themselves is to get your head and body out of more to commerce. Peter the Great

burlesque ceremonies took place, with the full approval of eccles, and royal authorities. These buffooneries ended in England at the Reformation, but the Eton 'Montem' (which used to be held in winter) is said to be descended from them.

Boyce, Samuel (d. 1775), English poet and dramatist. Originally an engraver, and later in the South Sea House. His works include The Rover. or Happiness at Last, a pastoral drama which was never acted, 1752; An Ode to the Right Hon. the Marquis of Harlington, Lord Lieutenant of Ircland, 1755; Paris, or the Force of Beauty, 1755; Poems on Several Occasions, a large paper copy of which was in the Garrick sale, 1757; Specimens of Elegiac Poetry, 1773; and a proson work, A New Pantheon, or Fabulous History of the Heathen Gods, Heroes, Goddesses, etc., explained in a manner entirely new, and adorned with figures depicted from ancient paintings. To which is added a Discourse on the Theology of the Ancients, and an appendix, The Thanksgiving Hymn of Adam.

Boyce, William (1710-79), an Eng. organist and composer, born in London and educated at St. Paul's School, being a chorister in the cathedral, and later an apprentice to Dr. Maurice Greene. In 1734 he became organist ut Oxford Chapel (St. Peter's), Vere Street, and in 1736 at St. Michael's, Cornhill, becoming in the same year composer to the Chapel Royal. In 1737 he was appointed conductor of the Three Choirs Festival, and in 1749 became organist at All Hallows, Thames Street, and in 1758 organist to the Chapel Royal. He composed numerous orchestral settings, operetta, etc., but is best known by his ed. of Cathedral Music, 1860.

Boycott, Charles Cunningham (1832-97), English land agent, educated at Blackheath and Woolwich. cated at Buckheam and Woomen. In 1850 entered the army; retired some years later as captain; 1873 agent for Lord Erne's estates in co. Mayo, coming into conflict, 1879, with the Land League agitators. They, under Parnell, began to persecute B. 1880; men refused to work for him, and he had to be placed under police protection. Hence the modern phrase 'to boycott a person is derived. B. left Ireland for London and U.S.A., but returning in the autumn of 1881, was again mobbed

ing a means of communication between siege works or with the magazine.

Boy-bishop. In medieval times, on the feast of St. Nicholas, Dec. 6, a choir-boy in each cathedral was elected by his fellows to act as bishop till Innocents' Day, Dec. 28, and during this period a number of hurlesque ceremonies fook place with

1880; Murray's ee Boycotting. of coercion con-

sisting in a conspiracy to prevent all dealings, social, commercial, or otherwise, with the person aimed at, and the conspirators back up their orders by force. It derived its name from being first used against Captain C. C. Boycott, Mayo, Ireland, in 1880 (q.v.). Boycott, Mayo, Ireland, in 1880 (4.2.). This form of persecution was stringently dealt with under the Crimes Act of 1887, but is not yet extinct in Ireland. B. became more and more a form of international warfare. In 1912 the Turks declared a national boycott against everything Italian. Before that in 1910 all Greek goods. Before that, in 1910, all Greek goods were rigorously boycotted. Shawdeshi movement in India. was the boycott by natives of British-made wares as a protest against the partition of that province. American trade-unions adopted this method of treating employers with whom they quarrelled.

Boyd, Andrew Kennedy Hutchison (1825-99), a Scottish divine and author, widely known as A.K.H.B., was born at Auchinleck, Ayrshire, and studied at King's College, London, and the Middle Temple; then returning to Scotland, he entered Glasgow University and became a minister of the Kirk, taking charge successively at Newton on Ayr, 1851-4; Kirk-patrick Irongray, Dumfries, 1854-9; St. Bernard's, Edinburgh, 1859-65; and St. Andrew's, 1865-99. In 1890 and St. Andrew's, 1865-99. In 1890 he was elected moderator of the general assembly. As an author he won fame by his Recreations of a Country Parson, first contributed to Fraser's Magazine, an attractive series of articles 'concerning' things in general, followed by his Graver Thoughts and Critical Essays of a Country Parson (1862-75), and three vols. connected with life at St. Andrews. His books have exactly the charm of a lively and genial conversation.

Boyd, Mark Alexander, Scotch author (1563-1601), born in Galloway. Scotch After a wild and unruly youth he left Glasgow College for the Continent. 1581. He studied law at Paris, Orleans, and Bourges under Jacques Cujas, whose friendship he won by some verses in the style of Ennius. In 1587 he served with Catholics in the League War for Henri III., but

resumed his studies at Toulouse, 1588. Barony parish, Glasgow, which then Thence, as suspect, he escaped with (Antwerp Latin poems dedicated to James VI.; 1595 he returned to Scotland, and was for a time travelling tutor to the Earl of Cassillis. He died and was buried in Ayrshire. His Epistolæ Heroides et Hymni are to be found in Johnston's Deliciæ Poetarum Scotorum, 1637. Among his prose and verse manuscripts (Advocates' Library, Edinburgh), are In Institutiones Imperatoris Commenta and L'Estat du Royaume d'Escosse à See Sibbald's Scotia Illustrata, 1683; Dalrymple's Sketch of the Life of Boyd, 1787; Irving's Lives of Scottish Writers (i.), 1839.

Boyd, Robert (d. 1590), fourth Lord

Boyd, Scotch statesman. Helped the regent Arran in suppressing Lennox's rebellion, 1544; warred against the queen-regent with the lords of the congregation, 1559; signed the treaty of Berwick, joining English army at Prestonpans, 1560. B. subscribed to Book of Discipline of the Kirk, 1561. According to some accounts he was privy to the murder of Darnley: 1567 inember of the packed jury acquitting Bothwell of the deed; but joined a band of nobles to protect the young prince from his supposed designs. Later he took Bothwell's part again. Permanent member of privy council, 1567; fought for Mary Queen of Scots on various occasions (Langside battle), 1568; member of Mary's council, 1569; employed by her on various missions, one being to obtain her divorce from Bothwell. He was suspected of complicity in the murder of Murray, 1570; joined regent's party, becoming privy councillor, and Morton's firm adherent after 1573 (appointed extraordinary lord of session). B. was a party to the 'raid of Ruthven,' and was banished for this, 1583; 1586 acted in negotiations for alliance between Everloyd. tween England and Scotland, and was restored to the bench. Worden of the marches, 1587; commissioner to enforce the statute against Jesuits (1587) in 1589. See Reith's History of Scotland; Froude's History, vii.; his Fr. and Hierries's Memoirs; Lettres de Marie William the Stuart (edited by Lebanoff).

Boyd, Zachary (1585-1653), a Scottish divine, was educated at the universities of Glasgow and St. Scottish divine, was educated at the fairly accurate purliamentary reports, universities of Glasgow and St. Boyer, Alexis (1767-1833), a Fr. Andrews, afterwards becoming first surgeon, was born at Uzarches in the by Louis XIII. in 1621, and the studied under Louis and Desaill, and Hugnenots were everywhere per- in 1794 became second operator in secuted, Zachary B. returned to Scot- the Hotel Diou. A few years later he land, and became minister of the attracted the notice of Napoleon,

held its services in the crypts beneath the cathedral. In 1634-35 and 1645 difficulty during the Catholic insurthe cathedral. In 1634-35 and 1645 rection to Bordeaux; 1592 he pub. at he was rector of the university. He was a noted preacher and a staunch On Oct. 13, 1650, a Covenanter. month after the battle of Dunbar, he had the courage to 'deal faithfully,' as the phrase went, with Cromwell, as the phrase went, with Cromwell, who was present, in a sermon at Glasgow Cathedral, but though political opponents, the two men respected each other in private life. B. wrote many books, the best known being The Last Buttell of the Soul in Death, 1629, edited by Gabriel Neil in 1831, and some books of verse Bealing of and some books of verse, Psalms of David in Meeter and Zion's Flowers, the latter being metrical versions of Scripture, often known as 'Boyd's Bible.' His writings were marked by the quaint 'conceits' common in the quaint concerts common in those times, but have some force. His Four Letters of Comfort were re-printed in 1878. At his death he left his library and a handsome legacy to the university.

Boydell, John (1719-1804), Eng. engraver and print publisher, born at Dorrington, Shropshire, and educated for the Church, but early left this profession for art; about 1741 apprenticing himself to a London engraver. He soon began to publish small landscape engravings of his own, and gradually increased this practice till he built up a small business. His works have little merit besides neatness of execu-tion. About 1751 he began the publication of the works of other engravers, and in this direction was most successful, producing the work of Woollett. M'Ardell, Hall, Earlom, Sharpe, Heath, J. Smith. Val. Green, etc. In 1790 he became Lord Mayorof London. His most famous production was the series of Shakesperian engravings which appeared in 1802.

Boyer, Abel (1667-1729) Eng. lexicographer, historical writer and translator, born at Castres, France, died at Chelsea. He pub. many works, amongst them his Fr. Eng. and Eng. Fr. Dictionnaire Royal, which was compiled in 1702 and remained popu-Te of thic Reign of Queen Annc.

Political State of Great Britain, with

student and then teacher, under his Corrèze. He was the son of a failor, consin Robert B., at the Protestant and acquired his first knowledge of College of Saumur, France. When medicine in the shop of a harberthat town was treacherously occupied surgeon. Proceeding to Parls he

Boyer who in 1808 appointed him his housesurgeon and in 1807 made him a baron. When the New Academy of Medicine was created he was one of its first members, and after Napoleon's downfall he was surgeon successively to Louis XVIII, Charles X., and Louis Philippe. As a surgeon he was at the same time judicious and daring. His prin. works were Traite complet de l'anatomie, 1797-9, and Traite

turning to his native country, joined the army. Toussaint l'Ouverture's negro insurrection drove him back to France, where he served under Napoleon. Returning again to Haiti, he aided in the relellion which overthrew Dessalines, the negro president (1806). Haiti now broke up into two republics under Petion two republics under Petion and Christophe. Siding with Petion, B. became president in the S., and conquered almost all the is. In 1825 he obtained Fr. recognition of Haitian independence by paying 150,000 francs, but in 1840 a popular insurrection drove him from the is., and he fied first to Jamaica, then to Paris, where he died.

Boyesen, Hjalmar Hjorth (1848-95), Norwegian-American scholar and writer, born at Frederiksvaern, Norway; educated at Leipzig and Christiania, and in 1869 became professor of languages at Urbana University. Ohio, U.S.A. From 1874 to 1880 he was professor of Ger. in Cornell University, and held the same post in Columbia College, New York, from 1882 till his death. His works, mainly in Eng., include: Gunnar, a Norseman's Romance, 1873; A Norseman's Romance, 1873; Falconberg, 1878; Godhe and Schiller, 1878; Ilka on the Hill-top, 1881; Queen Tilaniu, 1882; Idylls of Norway, 1882; A Daughter of the Philistines, 1883; Essays on German Literature, 1892; Boyhood in Norway, 1892. Many of them have been trans into Ger. and Norwegian. Boyle, Roscommon, Ireland, 28 m. S.E. of Sligo, on both banks of the R. B. Has considerable ogric. trade, and was professor of Ger. in Cornell Uni-

Has considerable agric. trade, and the ruins of a fine Cistercian abbey.

Boyle, Charles, fourth Earl of Orrery and Baron Boyle of Marston (1676-1731), born at Chelsea, and succeeded to the title of Earl of Orrery in While at Christ Church, he became involved in the dispute leading up to Swift's Battle of the Books, being entrusted with the production of a new ed. of Phalaris, to serve as a counterblast to the Reflections on Ancient and Modern Learning, 1694, by Wotton, a protégé of Bentley, in

which the opinions of Sir William Temple on Phalarishad been ridiculed. This was answered by Dissertations by Bentley, 1697, in reply to which B. aided by Atterbury and Smalridge, issued in 1698 Dr. Bentley's Dissertations . . . examined. B. was M.P. for Charleville, Ireland, 1695-9; for Huntingdon, 1701-5, and later entered the army, ultimately settling as a courtier and diplomatist in London.

Boyle, John, fifth Earl of Cork, fifth Earl of Orrery, and second Baron Marston (1706-62), son of Charles B. (q.v.); educated at Christ Church. Famous as a friend of Swift, Pope, and Johnson. In 1751 he pub.

Remarks on Swift, a rancorous criticism of Swift's life and works.

Boyle, Richard, first Earl of Cork (1566-1643), Irish statesman, born at Canterbury; educated privately and at Corpus Christi, Cambridge, and entered the Middle Temple, but in 1588 left England for Ireland, where he obtained several valuable introductions. He was accused by Sir William Fitzwilliam, Sir Henry Wallop, and others, of theft and embezzlement, but put their accusations down to conspiracy, and was about to lay his case personally before Elizabeth in England when the Munster rebellion broke out, and so reduced his fortunes that he was obliged to return to law in the Middle Temple. He was soon employed by Essex in Irish State business, and was again brought to trial at the instigation of Wallop, whose accusations he was able to refute. B. was then made clerk of the council of Munster, and went over to England on missions to the queen in 1601 and 1602, on the last occasion making arrangements with Sir Walter Raleigh to purchase all his lands in Ireland, obtaining 12,000 ac. for Ireland, obtaining 12,000 ac. for £1000. This enormous estate he administered with great firmness and energy, making great improvements, and introducing new industries from England. In 1603 he was knighted. in 1606 became a privy councillor for Munster, in 1612 a privy councillor of state for Ireland, in 1616 was created Lord B., and in 1620 Earl of Cork, in 1629 became a lord justice, and in 1621 triple transparent or Ireland. The 1631 high treasurer for Ireland. The appointment of Wentworth (Strafford) as lord deputy in 1633 involved him in difficulties, and Strafford's impeachment was no doubt partly due to B.'s skilful and inconspicuous opposition to him. B. was able to checkmate the rebels in Munster in the 1641 rebellion.

Boyle, Richard, first Earl of Burlington and second Earl of Cork (1612-97), was son of Richard B. (1560-1643). He took an active part in the Irish Rebellion, 1612; was created

Baron Clifford of Lanesborough, Yorkshire, 1643; Lord-Lieutenant of the West Riding of Yorkshire, 1663; and Earl of Burlington, 1663. He was a supporter of William and Mary.

Boyle, Richard, third Earl of Burlington and fourth Earl of Cork (1695-177 vy Councillor, 17 vy Councillor, 17 vy Councillor, 18 character of the West Ri Lord High Treasurer of Ircland. 1715; and K.C.G. 1730. He had travelled in Italy, and while there acquired a love for architecture. Of his works in this direction the chief are: the front of Burlington House, Piceadilly, and the colonnade within its court; the assembly-room at York; and parts of St. Paul's Church. Covent Garden

St. Paul's Church, Covent Garden. Boyle, Robert (1627-91), an Eng. chemist and philosopher, born at Lis-more, Ireland; educated at Eton and by private tutors at home and on the Continent. In 1644 he returned to England, having inherited his father's manor of Stalbridge, Dorset. began at once to show a fondness for scientific studies, and was influenced in this direction by the meetings of the Royal Society, then the Philosophical College, in 1645. While in England he made a speciality of chemistry, but on visiting Ireland in 1652-3 took up anatomy. In 1654 he settled at Oxford, and erecting a laboratory, was the leader of a small scientific society. About 1659, assisted by Robert Hooke, he invented the 'machina Boyleana,' the forerunner of the modern air-pump, and began at once to show a fondness for runner of the modern air-pump, and by means of experiments with the elasticity, weight, and compressibility of air, estab. 'B.'s Law' about 1660-62. In 1668 he settled in London, where he became a prominent where he became a prominent member of the Royal Society, and issued numerous scientific and philosophical works, corresponding with all the greatest men in these branches of learning throughout Europe. Throughout his life he was also an earnest student of theology, and subscribed largely to societies for the propagation of the Gospels. He appears to have been a man of singularly beautiful character, and was very popular, his reputation being international. His services to science were rather general than particular. but they were none the less valuable

His complete works were pub. in five volumes in 1744.

Boyle, Roger, Baron Broghill and first Earl of Orrery (1621-79), Eng. statesmen, soldier, and dramatist, born at Lismore; educated at Trinity College, Dublin. Oxford, and on the Continent. On returning to Encland he held commands in the Scottish expedition, and the Irish rebellion of 1641-9, and later served under Cromwell in the subjugation of Ireland. Although a Royalist at heart, he for many years was a stauneh supporter of Cromwell, and sat in his parliament, returning, however, to his old allegiance at the Restoration. He wrote several dramatic and poetical works, which had some contemporary success.

Boyle Loctures, a series of lectures founded in 1691 by the will of Robert Boyle, which provided £50 per year for a minister to preach eight sermons per year 'for proving the Christian religion against Atheists, Theists, Pagans, Jews, and Mohammedaus, not descending to any controversies among Christians themselves.' The office is tenable for three years, and among its holders have been Richard Bentley, 1692; Dr. Samuel Clarke, 1704; Rev. F. D. Maurice, 1846; Merivale, 1864-5; Professor Plumptree. 1860; Professor Stanley Leathes, 1868-70; Dr. Hessey, 1871-3; Henry Wace, 1874-5; Alfred Barry, 1876-8; Dr. Maclear, 1879-80; Canon Newholt, 1896. Many of the lectures have been published.

Boyne River, rises near Carbery, Kildare, and flows N.E. by Trim. Navan, and Drogheda, into the Irish Sea; total length about 70 m. It is famous in history for the battle of the B. fought in July 1690 between William III. and James II. The former had an army of British and Dutch soldiers, with a regiment of Huguenot refugees; King James's army was mainly Irish, with some Eng. and Fr. officers. After a sharp fight the Irish were defeated, and James fled to France. An obelisk near Drogheda marks the scene of the battle.

very popular, his reputation being international. His services to science and, 1853. He made his début at the Theatre Royal, Liverpool, 1876, but they were none the less valuable on this account, and he stands out as the originator of the 'experimental method.' Among his achievements may be mentioned the introduction of vegetable colour-tests of acidity, James's Theatre, 1874. He then alkalinity, the preparation of phosphorus, and hydrogen, the construction of hermetically sealed thermometers, and the use of freezing contents, besides his researches into Such is the Law (1878), A Gay Demonters, and the use of freezing contents and the use of freezing contents and the use of freezing contents. Such is the Law (1878), A Gay Demonters, and the use of freezing contents and the the Theatre Royal, under the them that the Theatre Royal, under the them the them the Theatre Royal, under the them the Theatre Royal, under the them that the Theatre Royal, under the them the Theatre Royal the them the Theatr

The Lights o' London, Alone in London, Heart of Hearts, The English Rose, The Streets of London, The Trumpet Call, The Prodigal Daughler, The Masqueraders, The Benefit of the Doubt (1895). The late Mr. Castello, Gossip, For Auld Lang Syne (1901), Becky Sharp (as Rawdon Crawley), The Marriage of Kitty (1902). He United With his own company in The White Horse of the Penpers, His Last Legs, The Serious Family. Inc has also played D'Alroy in Caste (1889), also played D'Alroy in Caste (1889), and in Our Boys. In 1905 he played Paul Sylvaine in Leah Kleschna; toured with Raffles, 1906; appeared in The Stronger Sex, The Rivals (1910), and toured as Frampton in Nobody's Daughter, 1911. He was the first representative in the English provinces of Claudian and other modern parts, and has also acted in New York.

Boyneburg (Bemelberg), Konrad (Kurt) von (1494-1567), one of the most renowned leaders of the Landsknechte in the time of Kaiser Karl V. Turks, 1532. In 1540, in the service of Duke von Bayern, he fought repeatedly against the Turks and French. In 1544 he captured Vitry and Meaur. The last battle at which he was present was St. Quentin, 1557. In 1571 Maximilian II. raised B.'s descendants to the rank of barons of the realm. See Solger, Der Lands-knechtsobrist Konrad von Bemelberg, 1870.

Boys' Brigade, The, was founded in 1883 by Mr. (afterwards Sir) William A. Smith, of Glasgow, with the object of promoting among boys 'habits of obedience, reverence, discipline, self-respect, and all that tends towards a true Christian manliness.' The Brigade consists of 1300 companies of boys between the ages of twelve and eighteen. Each company is connected with the church or other Christian body. Military drill is used as a means of banding the boys together, and of training them in discipline and selfrespect. Bible classes, gymnastic training, ambulance work, bands, club-rooms, scouting, athletics, swimming, and summer comps are extensively carried on. Membership, \$500 officers and 60,000 boys in the United

throughout the world. Headquarters. 30 George Square, Glasgow; Looffice, 34 Paternoster Row, E.C.

Boy Scouts. The association of B.S. was recently started (early in 1908) by Lieutenant-General Baden-Powell as the moving spirit. It is somewhat similar to the original Boys' Brigade of 1883. It has no definite military drill, but aims at training boys to be manly, self-reliant, and self-respect-ing. They learn to be quick and ready in action, and to co-operate one with another. The movement is largely to inculcate a spirit of patriotism into boys of all classes, and to train up young men to form an intelligent subsidiary force to the army if necessary. The boys practise signalling, tracking, and stalking, out, reconnoitring. camping various other usefu military knowledge. useful branches of Cooking and first-aid classes are attended, and observation of nature is encouraged. The unit for work is the 'patrol,' a party of some six or eight boys under for a time he was page at the Court a boy leader. Any number of patrols of Duke Ulrich von Würtemberg, may form a troop, under a Scout-He was trained in warfare under master and his assistants. These are sickingen and Frundsberg. On the supervised in the different dists. by a expedition to Italy, B. was chosen as local committee of scoutmaster repre-frundberg's deputy, and on the latter's sudden illness became commander-in-chief. He distinguished himself at the storming of Rome (1527), the defence of Naples (1528), granted for a detachment of scouts to and the capture of Florence (1530). be sent to the annual military He fought also in the war against the manœuvres. They often give demontaries of scouts for the stretches of scouts for the Sickingen and Frundsberg. On the supervised in the different dists. by a be sent to the annual military manœuvres. They often give demon-strations of companied in a con-fêtes. Their reference chiefe of khaki-colour, and the different troops (scarf, badge, or stockings). They have brimmed hats and the scout-pole. In Great Britain the number of members is already about 200,000. The movement has been eagerly taken up in Canada, Australia, New Zealand, and elsewhere, and is spreading to Germany. France, Spain, Norway, and other parts. The pledge taken is: 'I will do my duty to God and my country. will do my best to help others, whatever it costs me. I know the scout law and will obey it.' The movement in England has official papers in the weekly Scout, and the monthly Headquarters Gazette. A movement of a similar nature for 'Girl Guides' has been started. Headquarters, 114-8 Victoria Street, Westminster, S.W. See Baden-Powell's Scouting for Boys and article in National Defence (August 1910). For aims see Sadler's Continuation Schools in England and Elsewhere, 1907. Bozen, see Botzen.

Bozrah, possibly el-Busseirah, S.E. officers and 60,000 boys in the United of the Dead Sea, anct. cap. of the Kingdom: 115,000 officers and boys Edomites; or perhaps Bosra in the Hauran, S. of Damascus, with anex the Zulu War of 1879. When troubles Roman ruins, a populous city in with the Transyaal came to a head

mediaval times, now only a village.

Bozzaris, Marcos (1788-1823), a celebrated Greek patriot, born at Sull in Epirus. At an early age he entered into the struggle for the independence of Greece, but was defeated in 1803 by Ali Pasha, who forced him to retreat to the Ionian Isle. In 1820 Ali led an insurrection against the Sultan, and was joined by B. with 800 Sulistes who had been expatriated. B. was successful in several engagements, and continued the war after the death of Ali. He was defeated in 1822 at Petta and driven back to Missolonghi, which he defended very ably. He fell at Karpenisi whilst leading a daring night assault upon the Turkish-Albanian army, which was completely routed although of far superior strength.

Bozzolo, a tn. in Venetia, Italy, in the prov. of Mantua, with silk-worm breeding. Pop. less than 5000.

Bra, a tn. in Piedmont, 31 m. S.S.E. of Turin; breeds silk-worms, and has considerable trade in wine and silk.

Pop. 16,000.

Brabanconne, the Belgian national anthem, written and composed during the revolution of 1830, when Belgium broke away from Dutch rule. The words were by a Frenchman, Jenneval (or Dechet), the music by a Belgian, Campenhout. Jenneval was killed near Antwerp, October 1830.

Brabant, Early in the 15th century e Duchy of B., through intermarriage, became incorporated with Burgundy, and on the marriage of Mary of Burgundy to the Emperor Maximilian was transferred first to the Austrian empire, then under Charles V, to the Spanish crown. During the Netherland rebellion, N. B. became a Dutch prov., while S. B. remained Spanish till 1714, after which it fell in turns to the Austrians. Fr., and Netherlanders. In 1830 the Belgians achieved their independence and S. B. is now their central prov. It is very densely peopled (area 1268 sq. m., pop. 1,370,000), and rich both in agriculture and manufs.: chief cities Brussels, Louvain, and Nivelles. N. B. is larger, but poorer, being very Area 1980 sq. m.; marshy. 630,000. Chief tn. Hertogenbosch.

Brabant, Major-General Sir Ed-ward Yewd (b. 1839), Joined the Derby militia in 1855, and the year follow-ng went to S. Africa, where he intered the Cape Mounted Riffes, Since then his life has been entirely given to the service of his adopted country. He was for many years member for E. London in the Cape parliament, and was appointed com-inander of the Cape Yeomanry during Pistoja. His talents gained him early

in 1897, Colonel B. was president of the S. African League, and on the outbreak of war in 1899 he raised it's Horse iđ

service In 1900 1902 commandant-general of the Cape forces.

Brabazon, Major-General Sir John Palmer, b. 1843 in co. Mayo, Ireland. He joined the Grenadier Guards, exchanging later into the cavalry. His first campaign was in Ashanti, 1874. In 1878 he served in Afghanistan, and was one of the foremost at the capture of the Peiwar Kotal. acting as brigade-major of the cavalry div., he took part in the battle of Charasiab and the fighting round Cabul, and in 1880 shared in Roberts' famous march to Candahar, and the victory over Ayoub Khan's army on Sept. 1. In the Suakim campaign of 1884 he fought at El Teb and Tamai, and served with the Light Camel Corps in the attempt to relieve Gordon, being present at the battle of Abu Elca (Feb. 1885). In the Boer War he led the second cavalry brigade, under French, during the famous operations round Colesberg (Jan. 1900), and afterwards com-manded a div. of Imperial Yeomanry. He retired from the army in 1901, was made C.B. in 1903, and K.C.R. in 1911.

ce Braga. the anet. Lacus m. N.W. of

Rome. The basin of the lake is almost circular, and is either an extinct crater or a hollow caused by volcanic subsidence. The lake is 28 sq. m. in area, and 538 ft. above the sea, but so deep that its floor is actually below sea level. It has always been famous for excellent fish. Around its shores are many ruins of Rom, and perhaps even earlier origin.

Braccio, Fortelracci, or Braccio di Montone (1368-1424), an It. soldier, born in Perugia. He belonged to the Patricians of the family of Fortelrucci, and afterwards took up the cause of the nobles who had been banished from his native city. In 1417 he conquered Rome, but was afterwards driven from it by his rival Sforza, who was at this time the leader of one faction of soldiers, while B. was the leader of the rival onethe country being divided into these two factions. Eventually he entered the service of the King of Naples, but was wounded, conquered, and died while laying slege to Aquila.

Bracciolini, Francesco (1566-1646),

Through the influence of Cardinal Barberini, afterwards Urban XIII., he became secretary to Cardinal Antonio Barberini, and went with him to France. His works include a heroic poem, La Croce Racquistata (The Cross Regained), ranked by some critics next to Tasso's Jerusalem Delivered; Lo Scherno degli Dei, an imitation of Tassoni's La Secchia Rapita; L'Assedio della Rocella, a heroic poem in twenty cantos; and a poem on the election of Pope Urban XIII., who granted him the privileges of adding the Barberini arms to his own and styling himself B. dell'Api.

Bracciolini, Poggio (1380-1459), It. author, born at Terranuova. He was one of the leading scholars of his day, and at an early age he became secretary to Pope Boniface IX., and attended the Council of Constance in 1414. He was an eye-witness of the martyrdom of Jerome of Prague, of which he has left an exact account. It is to B. that we owe some old and valuable manuscripts, as he spent a great deal of his time in research in France and Italy and in copying manuscripts-among them these works of Cicero, Ammianus Mar-cellinus, Lucretius, Plautus, and others. See *Life* by William Shepherd.

Brace, Charles Loring (1826-90), an American author and philanthropist. was born at Litchfield, Connecticut; studied at Yale, and took a theo-logical degree in 1849. For some years he travelled a great deal, especially in Europe, and then settled down to social and philanthropic work in New York, taking particular interest in the training of boys and the reformation of criminals. He wrote sev. books of travel, and others on the application of Christian ideals in the working out of social reforms. A biography, with letters, was pub. by his daughter in 1894.

Bracebridge, a small tn. in Canada situated on the Muskoka R., in Muskoka co., Ontario. It is about 60 m. N.E. by E. from Collingwood.

Bracegirdle, Anne (c. 1663-1748), Eng. actress of the 17th century. The date of her birth is usually assigned to 1663, but by some it is put ten years later. She had a brilliant career on the stage till, in 1707, she and her rising rival, Mrs. Oldfield, played attached to the yard-arms of vessels, Mrs. Brittle in Betterton's Amorous by means of which the yards can be Widow on successive nights. audience awarded the palm to Mrs. Oldfield, whereupon her rival quitted the stage, never to return, except for Betterton's benefit performance in 1709. She achieved her greatest successes as an actress in the plays of Congreve, to whom she was suspected '

admittance to the academy of Flor-of being secretly married. Rightly or ence, where he made many valuable wrongly, she had a high reputation for virtue.

Bracelet (Lat. brachiale, from bracchium, the arm), an ornament worn from time immemorial by both sexes. Bs. are repeatedly mentioned in the Bible; Abraham's servant presented Rebekah with two gold ls. (Gen. xxiv. 22), and one was taken, pro-bably a royal armlet, from Saul as he lay dead on Mt. Gilboa (2 Sam. i. 10). Throughout the East, in anct. times, an armlet of plain or enamelled metal was a regal ornament; Egyptian kings are represented as such, and Bs. are still worn by Among the Latin Eastern princes. tribes Armillæ were very massive, Petronius Arbiter says they sometimes weighed over six pounds. The Roms, often awarded them as decorations for valour, to their own people only; on foreigners torques or other ornaments might be bestowed. were often given in Rome as birthday or wedding presents; as a rule virgins did not wear them. Among the Gks., who got their first designs from Asia, the snake-pattern was common, also penannular hoops with finial decora-tions. Among early Teutons and Scandinavians bronze armlets were often very large, protecting the whole fore-arm, and Bs. were often given to brave warriors; in the Saxon Chronicle King Edgar is called bestower of Bs., as is also Athelstan (Song of Brunanburh); this term is often applied to great chiefs. Very ancient Be, were simple in pattern, of easily worked metals, gold, silver, copper, and bronze. As skill and luxury increased, the choice of materials became more varied, brass, polished steel, etc., being used, and jewels freely employed in the decorations, especially in India and Persia, where these ornaments were often of fabulous cost. One pair of Bs., taken at the sack of Delhi by Nadir Shah (1739) was valued at a million sterling. Designs greatly; also multiplied highly wrought panels joined by clasps were among the triumphs of Etruscan art. Among barbaric tribes beads and plaited wire are much used to this day; the Kaffirs of S. Africa are very skilful in making Bs. of the latter material.

The swung round and so the trimined.

Brach is a term derived from the Fr. brache, to indicate a scenting or hunting dog of the hound type. It is applied to the female.

Brachial Artery, the artery of the upper arm. It is a continuation of the

axillary artery, and proceeds from in races. the armpit downwards and outwards which, however, is by no means along the inner side of the arm, reaching the middle of the bend of the elbow. Its branches are the superior profunda, springing from the inner and back part of the brachial soon after its commencement; the inferior profunda, a smaller artery springing from the middle of the brachial; the anastomotic, providing the anastomoses (q.v.) at the elbow; and muscular branches to the muscles of the upper arm. The brachial subdivides in the lower arm into the radial and ulnar arteries

Brachial Plexus, an aggregation of nerves in the lower part of the neck and armpit. The nerves engaged are the fifth, sixth, seventh, and eighth cervical and the first dorsal perves.

Brachinus, a genus of coleopterous insects of the family Carabida, of which sev. species are British.

BOMBARDIER BEETLE.

Brachionus is a genus of microscopic and aquatic beings of the phylum Rotifera and order Ploima. They have a long flexible foot ending in two toes, and they swim by means of minute cilia. B. urceolarius is the

commonest species.

Brachiopoda, though classed by Cuvier among the Molluscs, bear no affinity to them, and constitute a separate phylum of the animal king-dom. They bear some affinity, how-ever, to the Polyzoa and Annelida, but the resemblance to the Lamellibranchs, or true bivalves, is again superficial. The bivalve shells of the Brachiopodslie dorsally and ventrally, are unequal in size, and are sym-metrical about the median line, while the shells of the Lamellibranchs lie right and left, are equal, and unsymmetrical about the median line. this phylum the species are fixed. solitary, unsegmented, and often have spirally-coiled arms round the mouth. They are found at different depths in all seas, and the oldest fossils known are Brachiopods. They are divided usually into the two orders Ecardines, of which the species have shells without a hinge, and cardines, of which the species have hinged shells. See T. Davidson's Monagraph of the Brilish Fossil Brachiopoda, 1851-84; T. H. Huxley's Contributions to the Anatomy of the Brachiopoda, 1854.

Brachycephalic, a term applied to skulls of which the transverse diameter is more than eight-tenths of the long diameter. The heads of most individuals of civilised races are B., width in com-

This is a generalisation always true.

Brachycerus, a genus of colcopterous insects of the family Curculionide, which are apterous and generally very rough. These weevils live on the ground in S. Europe and Africa.

Brachypodium, or false brome-grass, is a genus of tropical and temperate Gramineæ, of which there are two British species, B. sylvaticum and B. pinnatum. The former grows in woods, the latter on open heath; the inflorescence is a simple raceme

with unequal glumes. Brachypteryx montana is a member of the family Timeliidæ, or babbling thrushes; by Latham it was called the mountaineer warbler, and by Javanese it is known as ketck. In colour it is indigo, black, and white, in song it is garrulous and plaintive, in habit it is insectivorous, and builds its nest on the ground. It inhabits the wooded peaks of Java.

Brachyteles is the name of a genus of Cebidæ, consisting of three species of prehensile-tailed monkeys found in America. They have woolly, hair but the long tail is naked towards the tip,

and the pollex is reduced.

Brachyura (Gk. βραχύς, short, οὐρα, tail) is the name applied to a large div. of decapod crustaceans which are characterised by having the short tails tucked up beneath them, c.g. the long-

lobsters. ometimes

and Brachyurus to a genus of short-tailed monkeys of S. America.

Brackel, a vil. in Germany, situated in the prov. of Westphalia, Prussia. It is about 4 m. N.E. from Dortmund.

on Dienie acuilina, is a ilch is vory It has a

creeping rhizone which grows at some depth below the surface of the soil, and sends up every year one large, much-divided leaf, known as a frond, at the base of which there is a nectary. On the back of the leaf-stalk it produces adventitious buds. In the B. there is a true lateral indusium, which is a delicate membrane of a yellow colour, and the margin of the pinnule bends over to protect the sporangia, thus forming a false industum.

Bayswater.

, Academy, Woolwich, where he I come assistant instructor

assistant direct the skull has 1864. Ho served in the Crimea, 1865-to mark the 56, being present at the siege of development of the civilised element Sebastopol. B. was military corre-

spondent of the Times in the Prusso-Austrian (1866), Franco-Ger. (1870-1), and Russo - Turkish (1877 - 8) wars. He was superintendent of Waltham and gunpowder director factory, He wrote of the Artillery College. books and papers on military affairs especially tactics. These include The Constitutional Forces of Great Britain, 1869; Foreign Armies and Home Reserves, 1871; Field Works, 1888; Reforms in the French Army,

Brackenbury, General Sir Henry, b. 1837 in Lincolnshire; he joined the Royal Artillery in 1856, and served in Central India during the Mutiny. In 1870-71 he assisted in the work of relieving the sick and wounded in the Franco-Ger. War. He went through the fighting in Ashanti, 1874, and in 1879-80 served as chief of the staff in the Zulu War. Returning home he was successively private secretary to the Viceroy of attaché, Paris

under-secretar 85 he led the river column in the Soudan campaign with such success that he was promoted to be major general. From 1886 to 1891 he was director of military intelligence, from 1891 to 1896 a member of the Indian council, from 1896 to 1899 president

of the Three Arms, 1873; Narrative of the Ashanti Column, 1885; and Some Memorials of my Spare Time, 1909. He was made K.C.B. in 1894, K.C.S.I. in 1896, and P.C. in 1904. Brackenbury (or Brakenbury), Sir Robert, descendant of a family in

Durham dating back to the end of the 12th century. Master and worker of moneys, and keeper of the king's exchange at the Tower, with jurisdiction over England and Calais; constable of the Tower for life, 1483. He served against the rebels under the second Duke of Buckingham, and was rewarded by Richard III. for his services by various grants. Keeper of lions in the Tower, 1484; vice-admiral and commissioner of the Admiralty; commissioner of gaol delivery for Canterbury and Kent; knighted; con-stable of Tunbridge Castle; sheriff of Kent for some months, 1485. said to have refused to murder the two little princes, but to have given over his keys to Tyrrell at Richard's over his keys to Tyrren at Richard at Command. He fought for Richard at Bosworth and was killed, 1485. See More's 'Life and Reign of Richard HII.,' in Kennet's History of England; 'Croyland Continuator,' in Gale's

Anglicarum Scriptores. Walpole's Historic Doubts, Eng. Hist. Review, vi., 1891. 1798; Doubts,

Bracket, a metal or wooden support which projects from a wall. have two uses. In architecture they support heavy weights, such as balconies and as articles of furniture they are used to support much lighter things, such as lamps and ornaments of all kinds.

Bracton

Bracklesham Beds, a sub-group of Bagshot Beds, being fossiliferous beds of strata belonging to the Middle Eccene formation. They are found in the cliffs round Bracklesham, Sussex, and the Isle of Wight.

Brackley, a market tn. and bor. in Northamptonshire; chief industries. brewing and boot-making. Once had considerable wool trade, and sent two members to parliament; has fine church, and school founded by William of Waynflete, 1447. Pop. 2500.

Brackwede Brock, a small tn. of Westphalia, Prussia, 2½ m. from Bielefeld, and near the Teutobergerwald range. Pop. 10,000.

Bracon, the typical genus of the Braconide in the Hymenoptera. It

is a large genus, widely distributed in Britain, with parasitic larvee, and differs from the Ichneumon-flies in having the cubital cell of the forewing separated from the second

cubital by a single cell.

Bract, or Hypophyll, is the name given to the leaf in the axil of which a flower is produced; all plants do not have such leaves, and are then called ebracteate, while others, as the lily of the valley, bear Bs. and are said to be bracteate. If there are any other leaves between these and the floral leaves they are called bracteoles. but these are often absent. B. leaves may be scaly, leafy, membranous, woody, or coloured; petaloid examples may be seen in the Bougainvillea. When they are arranged in a circlethey form an involucre, as in the head of a daisy, or the three green leaves of the anemone; when they form a solid cup, as in the acorn, it is called a cupule; a single large B. which protects an inflorescence, as in the

arum, is a spathe.

Bracton, Henry de (d. 1268), interred in Exeter Cathedral. Was an Was an English judge and writer on law. He was clerk in the king's service in the early part of his career, under the patronage of William Rayleigh. In 1245 he appeared as justice, and from 1248 until his death was a justice of assize in Somerset, Cornwall, and Devon. For a time he was also em-ployed as judge in the king's central court, but 1257 saw him dismissed, probably owing to his connection with political events of that period. 1259 he was made rector of Combe-in-Teignhead, and two years later he became rector of Barnstaple; 1264:

saw him archdeacon, and a year or so before his death he attained to the chancellorship of Exeter Cathedral. His fame is chiefly due to his treatise on the laws and customs of England, the greater part of which was com-piled 1250-56, and although it ro-mained unfinished, it is considered the best work of any English lawyer of the middle ages.

Braddock is in the co. Allegheny, United States. It is situated on the R. Monongahela in South-western Pennsylvania, about 10 m. S.E. from Pittsburg, at an alt. of 830 ft. There are extensive iron works in the neigh-

bourhood.

Braddock, Edward (c. 1695-1755), a British general, was born in Perthshire, being the son of Major-General Edward B., and entered the army in 1710. During the later years of the War of the Austrian Succession he fought in Holland, being then a lieu-tenant-colonel. In 1754 he was made a major-general, and in the following year he went to Virginia to command the British forces against the French. He was much hindered by the supply arrangements, but finally took the field with about 2000 men, amongst whom was the afterwards famous George Washington, and heattempted an attack upon Fort Duquesne (now Pittsburg). The column fell into an ambush of French and Indians, and were completely routed; B. himself, after conspicuous gallantry, and after having times without number rallied his men, was shot and fell mortally wounded. He died shortly afterwards, and was buried at Great Meadow. Braddon, Mary Elizabeth (b. 1837),

Braddon, Mary Elizabeth (b. 1837), a popular English novelist, was born in London, and showed literary talent at a very early age, writing both for periodicals and for the theatre. Her first great success was Lady Andley's Secret, 1802, which she followed up with Aurora Floyd and Eleanor's Fictory, 1863, and Henry Dunbar, 1864. These are all sensational' novels, constructed on sensational' novels, constructed on melodramatic lines, with skilful and Though never rising to the highest levels of fiction, Miss B., who has written more than fifty novels, has shown wonderfully sustained powers, her latest book, Beyond these Voices, 1910, being proposed by more than the proposed by the second that the second the second than the second than the second than the second that the second than the second t 1910, being pronounced by many critics quite equal to any of its predecessors, but probably it will be by her earlier works that she will be best remembered. Sev. of her stories appeared as serials in Belgravia. which she ed. for many years. In 1874 she married Mr. John Maxwell, publisher, and their son, Mr. W. B. Maxwell, has already wen considerable repute as

Bradford, Yorkshire, a city, municipal and co. bor., has been connected with wool in one form or another for six centuries. In 1311 a fulling mill was at work there, and for 300 years woollen manuf, was its staple in-dustry, but in the 17th century the worsted trade began to drift from E. worsted trade began to drift from r. Anglia to the N., and B. became one of its chief seats. There are now 300 large factories for the wearing of worsted, velvet, plush, alpaca, mohair, and other textile materials, also iron and engineering works, B. being iron and engineering works, is, ceme the centre of a busy coul and from mining dist. It has many fine public buildings, including the Town Hall, Mechanic's Institute and Hall, St. George's Hall, and the Cartwright Gallery and Museum. Besides sev. parks, Baildon Moor (670 ac.) is kept as a recreation ground. B. became a as a recreation ground. B. became a parl, bor, in 1832, returning two members; in 1885 these were increased to three. In 1897 it was created a city, and in 1907 received the honour of a Lord Mayor. Pop. 300,000.

Bradford, Pennsylvania, a city in the N. of the state, in a rich oil-pro-

the N. of the state, in a rich off-producing dist. Has large petroleum refineries, also manufs. Iron ware, glass, chemicals, etc. Pop. 20,000. Bradford, Sir Edward Hidley Colborne, G.C.B., K.C.S.I. (1836-1911) goined the Madras cavalry in 1853. During the Mutiny he distinguished himself particularly in the operationagainst Tantia Topice, and afterwards acted first as political agent, then head of the criminal dent. concerned acted first as pointern agent, onen head of the criminal dept. concerned with Thuggism, and later as political secretary to the Indian gov. Returning home, he was in 1890 appointed Commissioner of Police in London He was made G.C.B. in 1897, and terroids to his returnment in 1003. baronet on his retirement in 1903.

Bradford, John (c. 1510-55). Eng. Protestant preacher. Rather reckless in youth, he was educated at Cambridge (becoming fellow of Pembroke Hall), and converted by Latimer. B. hand, and converted by Latimer. B. became Ridley's chaplain, 1550; prebendary of St. Paul's, 1551; royal chaplain to Edward VI., 1553. IIIs preaching won praise from John Knox. Tried before Gardiner and Bonner, he was burnt at Smithfield under the Marian persecutions. B.'s writings were ed. by Townsend for the Parker Society, 1848-53. See Stevens's Life, 1832.

Bradford, Samuel (1652-1731), an English bishop, educated at St. Paul's School and, after the plague and fire, at Charterhouse; went to Cambridge, 1669, leaving without a degree bennrried Mr. John Maxwell, publisher, cause of religious scruples. Studied and their son, Mr. W. B. Maxwell, has already won considerable repute as a admitted to degree of M.A. by royal movelist and journalist.

Oxford. B. took orders after the Revolution, becoming deacon and priest, 1690; 1691 minister of the church in Southwark, and one of the governors of St. Thomas's Hospriest, 1690; 1691 minister of the church in Southwark, and one of the governors of St. Thomas's Hospital. Became tutor to grandsons of Archibichon Wilderon holms and the church in Southwark, and one of the Poor, was curate here from 1797 to 1805. of Archbishop Tillotson, being made rector of St. Mary-le-Bow, 1693; B. often preached before the corporation of London, and lectured at various places. He was a staunch Whig and Protestant; 1698 William III weddelings of the staunch of the staun III. made him royal chaplain in ordinary. He continued in office under Anne, becoming prebendary of Westminster, 1708; in 1699 B. gave the Boyle lecture in St. Paul's; also others between 1691-1732. He preached sermons on 'The Credibility of the Christian Revelation, from its Intrinsick Evidence.' These were published with others in A Defence of Natural and Revealed Religion, 1739. Bishop of Carlisle, 1718; bishop of Rochester and dean of Westminster, 1723. His work, Discourse concerning Baptismal and Spiritual Regeneration, 1709, was III. made him royal chaplain in ordiand Spiritual Regeneration, 1709, was wery popular. A 9th ed. appeared 1819, published by S.P.C.K. See Gent. Mag., May 1731; Birch's Life of Tillotson, 1752; Le Nevo's Fasti, 1854. Bradford, William (1590-1657), an American colonial governor and historian, born near Doneaster. As a 'Pil-rim Eachton', sailed in the Mandauer.

torian, born near Doneaster. As a 'Pil-grim Father' sailed in the Mayflower for Virginia, 1620, but through storms landed at Plymouth, U.S.A. B. succeeded Carver as governor of this settlement, 1621, ruling firmly and wisely, and showed tact in dealing with the Indians. He was author of History of Plimouth Plantation, pub. in Proceedings

torical Society, on church gov nalia, 1702;

England Leaders, 1901; Hunter's Collections concerning the Founders of New Plymouth, 1852.

Bradford Clay, a marly stratum, forming a subdivision of the Great Oolite, found at Bradford, near Bath. Crinoids, Apiocrinics Parkinsoni, occur in great numbers, showing that the rock on which the clay is de-posited once formed the bottom of the sea where these animals must have lived till they were covered

with mud. Bradford-on-Avon, an anct. market tn. in Wiltshire, near Bath. St. Aldhelm was abbot of B. monastery in A.D. 705, and the little church of St. Lawrence, still perfect, dates from Saxon times. B. is mentioned as a bor. in Domesday Book. Under the Stuarts it was the chief cloth-manuscript in the Westerney. facturing tn. in the W. of England, but its prin. industries now are brewing and the making of rubber goods. Pop. 4500.

Brading, a small tn. near Ryde, Isle of Wight. There are traces of a

Bradlaugh, Charles (1833-91), Eng. secularist and politician, was born in Hoxton, London. Being the son of a solicitor's clerk, in poor circumstances, he went to work as an officeboy, but while still a lad imbibed freethinking ideas, and through them level his circuit. lost his situation. At seventeen he enlisted as a soldier, but bought himself out after a few years. He then became a 'freethought' writer and lecturer, calling himself 'Iconcelast,' and gradually rose to be a prominent leader among 'advanced' political leader among 'advanceu poursosseties, Reform Leaguers, Secularists, and Land Law Reformers. His paper, the National Reformer, was prosecuted by gov. for blasphemy and sedition in 1868, but B. defended himself with much skill and judgment was eventually given in his favour. His determined advocacy of atheistical and republican opinions aroused intense opposition, and for some years he was continually attacked both in the law courts and the press. This antagonism was in 1876 intensified by his republishing, in alliance with Mrs. Annie Besant, an alliance with Mrs. Annie Besant, an American pamphlet, The Fruits of Philosophy, which had already been condemned by an Eng. court of law. For this, as an indecent and immoral publication, B. and Mrs. Besant were sentenced to imprisonment and a heavy fine, but an appeal resulted in their favour on a technical point. Mr. B. had for some years been seeking to enter parliament, and in 1880 ing to enter parliament, and in 1880 was elected for Northampton; refusing, however, to take the oath he claimed liberty to affirm under the Parliamentary Oaths Act, but he was rejected by the House, his subsequent offer to take the oath' as a matter of form' being regarded as insulting. After being re-elected four times, he was at last permitted to enter, on his own terms, in 1886. As often happens the atmosphere of parliament had a refining influence upon him, and during the five years of his membership his courage and honesty had won the

Ils courage and honesty had won the respect even of his opponents.

Bradley, Andrew Cecil (b. 1851), LL.D. and Litt.D., was educated at Cheltenham and Balliol College, was elected fellow of Balliol in 1874, and lectured there from 1876 to 1881. He was professor of modern literature at University College, Liverpool, from 1881 to 1889, and at Glasgow University from 1889 to 1900, then professor of meetry at Oxford from 1901 to lessor of poetry at Oxford from 1901 to 1906. He has pub, a Commentary on Tragedy, 1904; and Oxford Lectures lish Grammar.

on Poetry, 1909.

Bradley, Rev. Edward, writer, graduated at Durham University in ĭ848. As a contributor to many periodicals, including Punch and Leisure Hour, he was well known to his contemporaries, but his claim to posthumous fame rests on his Adventures of Mr. Verdant Green, an Oxford Freshman, 1853. It is full of fun, and, considering the author was not an

Oxford man, remarkably true to life. Bradley, Francis Herbert (b. 1846), half-brother to Dean B.; fellow of Merton College, Oxford. Has written: The Presuppositions of Critical His-tory, 1874; Ethical Studies, 1876; The Principles of Logic, 1883; and Appearance and Reality, 1893.

Bradley, George Granville (1821-1903), Dean of Westminster, was educated at Rugby under Arnold, and at University College, Oxford, where in 1844 he was elected a fellow. In 1845 he went as assistant-master to Rugby, and in 1858 was appointed headmaster of Marlborough, where he was very successful. His personal influence was remarkable; Tennyson said he sent his son 'not to Marl-borough but to Bradley.' Returning to University College in 1870 as its head, and finding the standards both of discipline and learning only moderate, he set to work as a reformer with such success that admission to his college became an honour to be competed for. On Dean Stan-ley's death in 1881, B. was chosen to succeed him. Here again he had much to do; the buildings were dilapidated, and funds were lacking, but the Dean's energy and persistence overcame difficulties, and the necessary repairs were carried out. He also set on foot an inquiry into the question of future burials and monuments in the over-crowded Abbey, and or-ganised a system of memorial services. After the coronation of Edward VII. (Aug. 1902), Dean B. r. from office. He was buried i Abbey

educated at Chesterfield Grammar School. For some time he was clerk and foreign correspondent in Shef-field, but went to London in 1884, and a contributor to various is rare. became literary journals, and for a time editor; literary journals, and for a time editor of the Academy. He has been three scholar and librarian, born in London, times president of the Philological Society. His chief original works are The Story of the Goths, 1888, and The fellow, 1853. After a short scholastic Making of English; as editor he has brought out sev. important works, bridge as assistant in the University including Caxlon's Dialogues (Early Library. This post he resigned to English Text Society) and a revision gain more time for antiquarian re-

'In Memoriam,' 1901; Shakespearean of Morris's Elementary Lessons in English Grammar. Since 1889 he has been part editor of the Oxford New English Dictionary.

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Bradley, James (1693-1762), English astronomer, born in Gloucestershire at Sherbourne, and entered Balliol College, Oxford, in 1711, where he took his B.A. in 1714 and his M.A. in 1717. He was given his first great interest in astronomy by his uncle, the Rev. James Pound, and his own genius for mathematics and astronomy soon won him the friendship of many learned scientists. He became a fellow of the Royal Society in 1718. Until 1721 he was in hely orders, but in that year he resigned his ecclesiastical preferments in order to take up the professorship of astronomy at Oxford. In 1739 he put forward his famous theory of the aberration of light, and in 1748 the theory of nutation, which was supplementary to his previous discovery. In 1742 he became astronomer royal, and was able to obtain a large amount of new apparatus to further his discoveries. He was offered the vicarage of Green-wich, which he refused, but in 1752 he was given a crown pension of £250 per annum. He retired to Gloucester-shire, where he died. His works were published by the Clarendon Press, Oxford, between 1798 and 1805.

Bradshaw, George (1801-53), born at Pendleton, Lancashire, was in business at Manchester as a map-engraver and printer when the railway era began, and in 1839 he pub., at six-pence, the first of his Railway Time Tables. In 1840 this was enlarged and raised in price, but in Dec. 1841 he began a monthly issue of the tables once more at sixpence, and in 1847 commenced his Continental Railway Guide. He was a member of the Society of Friends.

Bradshaw, Henry (c. 1450 - c. 1513), an Eng. Benedictine monk and poct, born at Chester. Studied theology at Oxford, and then returned to his His De Anti-

Urbis Cestrice

St. Werburgh, Bradley, Henry (b. 1845), lexico-grapher, was born at Manchester, and educated at Chestorfield Grammar Consult Thomas Warton, History of School. For some time he was clerk English Podry (ed. Hazlitt), 1871, and foreign correspondent in Shef-Lyfe, 1887; Pynson's edition (1521)

Bradshaw, Henry (1831-86), an Eng.

the MSS, of the library. His discovery in 1857 of the Book of Deer threw light on ancient Celtic language and Another important discovery was that of MSS. containing the earliest remains of the Waldensian language and literature. In a letter to the Guardian, 1863, he exposed the frauds of Simonides, who pretended to have forged the Codex Sinaiticus, brought from the Gk. monastery of Mt. Sinai by Tischendorf. In 1866 he discovered two previously unknown poems—Legends of the Saints, and some lines on the Siege of Troy, which he found in a MS. of Lydgate's Troye Booke. These he erroneously attributed to Barbour. B. turned his attention to such a large variety of subjects that his literary remains are hardly an adequate criterion of his powers. Praise is due to him not only for his valuable discoveries, but also for his efforts to improve the standard of library administration. His duties as university librarian, 1867; dean of as university intrarian, 1001, dean of his college, 1857-65; and prefector, 1863-8, occupied much of his time. His Collected Papers were pub. by F. Jenkinson, 1889. Consult the Memoir by G. Prothero, 1888, and C. F. Newcombe, Some Aspects of the Work of

Henry Bradshaw, 1905. Bradshaw, John (1602-59), the president of the court which sentenced B. was born in Charles I. to death. Cheshire, and received a fair educa-Chiesinic, and teetred a ran Catalogue tion, being called to the bar in 1627. He became of sufficient prominence in his native county to be mayor of Congleton, and later recorder of the borough. He became prominent as a lawyer, and took part in a number of trials of importance during the period 1640 to 1647. In 1647 he was made chief justice of Cheshire and a Welsh In 1649 the remnant of the House of Commons which still existed after Pride's Purge had determined to ing the king to trial. The leaders the bar, quite apart from their bring the king to trial. political opinions, refused to take part in a trial which they knew to be both illegal and unconstitutional. B., however, accepted the post of president of the court, a court the jurisdiction of which Charles I. quite rightly, but quite uselessly, refused to recognise. B. put aside all legal objections to the court, and even refused to allow Charles to speak in his own defence. After the execution of the king, B. became one of the prominent leaders of the Commonwealth. He was always a staunch republican, and he branded as illegal Cromwell's dissolution of the Rump Parliament. He was an opponent of Cromwell during the Commonwealth period, and was by him practically forced into retire-

search, and he compiled a catalogue of the MSS. of the library. His discovery in 1867 of the Book of Deer threw well, but died in Oct. of that year. He light on ancient Celtic language and literature. Another important discovery was that of MSS. containing Restoration.

Bradshaw, William (1571-1618), a Puritan divine, educated at Worcester, Ashby-de-la-Zouch Grammar School, and Cambridge. Became tutor in the family of the governor of Guernsey (c. 1595), coming under the influence of Thomas Cartwright. On returning to England he preached for a time in villages near Cambridge. In 1601 B. became a lecturer at Chatham, but was suspended for heretical A patron in Derbyshire teaching. helped him for a time; he was chosen lecturer at Christ Church, Newgate. 1605, but the bishop would not authorise him; in 1605 B. published English Puritanisme, supporting complete autonomy of individual congregations while strongly advocating the duty of submission to civil authority. A Latin version by Ames spread these views abroad. B. got into trouble for them, and retired for a time to Derbyshire. Among his numerous publications are: Humble Motives for Association to Maintain Religion Established, 1601; A Consideration of Certaine Positions Archiepiscopall, 1604; A Protestation of the King's Supremacie: made in the name of the Afflicted Ministers, 1605; A Marriage Feast, 1620; An Exposition of the Ninlieth Psalm, and a Sermon, 1621; and a collection of tracts, Several Treatises of Worship and Ceremonies, 1660. Many were published anonymously. See Browne's Hist. of Congregationalism in Nor-folk and Suffolk, 1877; Gataker's Life in Clark's Martyrology, 1677; Neal's History of the Puritans, i. and ii., 1759; Barclay's Inner Life of the Religious Societies of the Commonwealth, 1876. Bradwardine, Thomas (c. 1290-

1349), Archbishop of Canterbury in the reign of Edward III., was so learned that he was known as the 'Doctor Profundus.' A native of Sussex, he was educated at Merton College, Oxford, where he rose to be Doctor and Professor of Divinity, and Chancellor of the University. He became famous as an eloquent lecturer and powerful writer, especially against Pelagianism; he was also a renowned mathematician. Having attracted royal notice, he was made chancellor of the London diocese and chaplain to Edward III., whom he accompanied during the Creey campaign and the siege of Calais. Returning to England he was made Prebendary and then Archdeacon of Lincoln, and the 1349 Archbishop of Canterbury, but died of the 'Black Death' a few weeks later.

during the Protestant revolution in preventing his native town from being burnt. He was a staunch upholder of the revolution. Later he settled in London, where he held several livings, and here also he died. His most Lisbo famous work was his versification of joiner the Psalms, which he did with the a portion of the garrison (led by non-collaboration of Nahum Tate. T was authorised in 1696. He wi other poetry, a tragedy called Rape, or the Innocent Impostors, :

have long since been forgotten. the heart-beat symptom of St and may be due

the walls of the arteries or to muscular fibres traction from th

met with in jaundice, melancholia, and certain toxic conditions.

Bradypus, or Ai, is the three-toed sloth, an edentate mammal of the family Bradypodide. It inhabits the forests of S. America. See Slotti.

Braemar, a dist. lying along the R. Dee, Aberdeenshire, among the Grampians. It contains large deer forests, and sev. fine castles and man-sions, the chief being Balmoral and Abergeldie Castles, and other royal residences. There are no towns; the largest vils. are Braemar and Crathic. In this dist. the rebellion of 1715 broke out under the Earl of Mar.

Brag, a game of cards, the interest of which depends on the ability of the player to 'brag' as to the contents of his hand. It is usually played for his hand. It is usually played for stakes. It resembles post and pair, a bastard form of prime or poker.

Braga (Rom. Bracara Augusta), the third city of Portugal, N.E. of Oporto, has been successively Rom., Gothic, Moorish, Spanish, and Portuguese. Its archbishop is primate of Portugal. The cathedral, palace, and city are medieval in appearance, and contain many interesting antiquities. B. has manufs. of fire-arms, jewellery, and cutlery, and is the centre of a cattleand dairy-farming dist. breeding Pop. 25,000.

Braga, Theophile (b. 1843), Portuguese statesman, philosopher, historian, and man of letters, and the first president of the Portuguese Republic. He was born in the island of St. Michel (Azores) and educated at the university of Colmbra, at

Brady, Nicholas (1659-1726), poet head of a literary school. Later, in and divine. He was born at Bandon in 1872, he was appointed professor of Cork, and educated at Westminster literature in Lisbon. Early in life School and Christ Church, Oxford, Sonhor B. (whose philosophy was School and Christ Church, Oxford. School B. (whose philosophy was He took orders, and was instrumental that of Auguste Comto, i.e. Positivist) entered the political arena, and by virtuc soon i lican party eted tho t in leing and s), the rising was public was for-

oct. 5, young and the new a blank verse translation of accepted by the Ericid. Both of these latter works rest of the country. Senhor B. was declared president of the provisional Bradycardia, abnormal slowness of government, a government which e heart-beat.

a dictatorship for six

President B.'s adminisvas characterised by strong cal action: the Jesuits were religious associations disand clerical property con-With the adoption of a

tricle. Slowness of heart-beat is also constitution and the election of a new chamber, Senhor B. retired from public life to the sanctuary of his study, from the making of history to the writing of it. Senhor B.'s literary output has been voluminous, and includes poems, biography, and history—particularly literary history. Among his better known works are: Among his cetter known with acc. Visions of the Times, History of Portuguese Lilcrature, History of Pedagopy in Portugal, and Luiz de Camoens and his Times.

Bragança: 1. An episcopal city, cap. of dist. in the N.E. of Portugal.

The city consists of two parts, one anct and enclosed by walls, the other modern. It gave its name to the family of Braganza, the former rulers of Portugal, and for sev. centuries of Brazil. Prin. industry, silkworm rearing and silk manut. Pop. of tn. 5500, of dist. 185,000. 2. In Para, Brazil; a seaport on the N.E. coast, about 100 m. E. of the Para estuary; carries on agric. trade. Pop. 18,000. 3. Tn. in agric. trade. Pop. 18,000. 3. Tn. in the prov. of São Paulo, Brazil, centre of sugar-growing dist. Pop. 10,000.

Bragança, or Braganza, House of. This house was founded by Alphonso, a natural son of the Portuguese king, John I., in the earlier half of the 15th century, the title being derived from the city of the same name. When Portugal in 1640 threey of the Spanish voke through a bloodless revolution, the Duke of B. became king of Portugal as John IV. In 1807 Napoleon declared the throne empty and John VI. retired to Brazil until 1821, being succeeded in 1826 by his son Peter, the Emperor of Brazil. which place he subsequently became Peter, however, resigned the crown in

favour of his daughter Maria, with whose death in 1853 the main Portuguese branch of the house terminated.

Bragg, Braxton (1817-76), one of the leading southern generals in the American Civil War, 1861-65. He was born in N. Carolina, trained in the military academy at W. Point, and served in the Seminole and Mexican Wars, rising to the rank of lieutenant-colonel. From 1856-61 he led a civilian life in Louisiana where he was Commissioner of Public Works. When the Civil War broke out he was appointed brigadiergeneral, and soon after major-general, general, and soon after major-general, and served in the Army of the Mississippi, taking part in the Battle of Shiloh, 1862. Soon after that he was placed in command of the western army, in succession to General Beauregard, and invaded Kentucky, but was repelled by Buell. Later, he faced Rosenkranz in a long and hard-fought compaign 1862-63 in which lought campaign, 1862-63, in which at one time the Northerners were in great straits, but were relieved by Grant, who defeated B. at Chatta-novga, Nov. 1863. The latter was now superseded, but acted as military adviser to President Davis until late in 1864, when he took part in the campaign against Sherman, which ended in the surrender of the Southern army. After the war he was appointed chief engineer to the state of Alabama. His death occurred suddenly at Galveston, Texas. Bragi, in Northern mythology a son

of Odin and Frigga; god of wisdom, poetry, and eloquence, which after him received the name of Bragur. At festivals, horns were drunk in his

honour.

Braham, John (c. 1774 - 1856), a great Eng. tenor, was born in London, of Jewish family, his real name being Abraham. He first sang in public when only thirteen years old. When his voice broke, he supported himself by pianoforte teaching, but when it returned, after two years' training under Rauzzini at Bath, he re-ap-peared at Drury Lane in 1796, in an opera by Storace, and was so successful that many engagements were offered him. But the desire for further experience and study took him to France and Italy, where he had a long series of triumphs, being engaged in all the prin. opera-houses. Returning home in 1801, he was received with enthusiasm, and thenceforth reigned supreme in concert, oratorio, and

Brahe, Per, Count (1602-80), Swedish soldier and statesman. At twentyfour he became chamberlain to Gustayus Adolphus, and served under him with distinction in the Polish and Ger. wars till Gustavus fell at Lützen in 1632. For the next two years B. was regent of Sweden, during the minority of Christina, and was afterwards governor-general of Finland (1637-40 and 1648-54), where he ruled with great success, introducing many valuable reforms, and founding the university of Abo. In 1660 he was again regent during the minority of Charles XI.

Brahé, Tycho (1546-1601), Danish astronomer eminent author of the Tychonic system of the heavenly bodies (see ASTRONOMY). He was born at Knudsthorp on Dec. 14, of aristocratic parentage, and educated at the university of Copenhagen. He commenced to study the law, but his interest in astronomy was raised by the total eclipse of the sun which occurred on Aug. 21, 1560, and from that time forward he de-voted all his energies to the pursuit of this science, becoming the greatest practical astronomer of his day. His first noteworthy achievement was the radical correction of the Alphonsine and Prutenic tables. This was while he was at Leipzig, and at Augsburg, on the evening of Nov. 11, 1572, he discovered a new star in the constellation of Cassiopeia. It was not only a new star, but excelled in brilliancy any star in that group. The star gradually diminished in brightness, but at the time of its discovery by Tycho it was as bright as Venus. This discovery brought fame Tycho, and after further wanderings in Germany and Switzerland, King Frederick II. of Denmark undertook the building, equipment, and main-tenance of an observatory to enable Tycho to prosecute his astronomical labours. On the island of Hven, or Hoëne, was erected an 'astronomical castle,' called Uraniberg ('city of the heavens'), and an observatory was sunk in the ground named Stellberg (city of the stars'). This was in 1576, and from that time till 1596 Tycho, under the protection of Frederick and his son, Christian IV. conducted a long series of painstaking observations, and enunciated the Tychonic system of planetary motions, a system which sought to reconcile the old Ptolemaic and new opera. He wrote many songs, which recomes the control of the many songs, which had no great merit, but to which his singing gave wide popularity. One of them, the Death of Nelson, is still well them, the Death of Nelson, is still well persons, including James VI. of Scotknown. His singing was remarkable land (afterwards James I. of Engfor Intense expression; Lambspeaks of this in one of his essays (On Imperfect the control of the dislike of the Seminathies).

majority of the members of his aristocratic caste (the knowledge-hating Danish nobles), was deprived of his appointments and of King Christian's protection, and had to abandon his loved Uraniberg. In the summer of the next year he finally left Denmark with his wife and family, and at the end of 1598, in response to the pressing invitation of the Emperor Rudolph II., he established himself and his instruments at Benateck, near Prague in Bohemia. Here he was joined by the celebrated Kepler in Feb. 1600, and they laboured together till Tycho died, Oct. 24, 1601. Among interesting items of personalia may be mentioned the fact that Tycho lost the front part of his nose in a duel with one Pasberg, a Dane, and that Tycho made himself and wore an artificial of the part of the par artificial nose, hardly distinguishable from a real nasal organ. Also that his long feud with his fellow noblemen was intensified by marriage with a plebeian girl of Knudsthorp. account of some of Tycho's work is given elsewhere (see ASTRONOMY). Not the least among his many claims to immortality is the fact that with his observations, and acting on his advice, Kepler discovered his great laws of astronomical motion. How thorough and accurate Tycho's observations were may be better appreciated when it is remembered that Tycho died just prior to the invention Tycho's pupil, of the telescope. Tycho's pupil, Kepler, destroyed his (Tycho's) system with the data so laboriously gathered by his master.

Brahilov, see BRAILA. Brahma and Brahmanism. Brahma is the supreme being of the Hindu pantheon. He has three manifesta-tions—Brahmā, Vishnu, and Siva, but, strictly speaking, all the other

Veda. cows only

the generative power of the whole nine centuries ago. stance of life and created energy.
Brahman in the neuter is simple, infinite being; when it passes into actual manifested existence it is called Brahma; when it nebions. universe. His name is derived from the root brih, 'to expand,' and he actual manifested existence is called Brahma; when it achieves world-growth it is termed Vishnu; Chandopya Brahmana, belonging to world-growth it is termed Vishnu; Chandopya Brahmana, belonging to the White All the other simple being, Siva. deities are merely manifestations of the neuter, Brahman. The fundamental doctrines of the Hindu religion gather round the Brahman Nagpur and Orissa into the delta of caste, and Brahmanism is practically the Mahanaddi, N. of Cuttack. It is

changeable as a phrase with Hinduism. But the Brahmins are recognised as the highest easte in the Hindu religion—the easte of priests of the highest rank. In its ranks ceremonial purity and social exclusiveness are regarded as first essentials. Brah-manism is not a body of theological dogmas, but an hereditary system of customary observances. Sec India.



BRAHMA

Brahmanabad, a ruined city N.E. of Haidarabad, Sindh. It stood on an anct. course of the Indus, and its fortifications were 41 m. in perimeter. Excavations have shown that everything is still in silu, as at Pompeii, so but, strictly speaking, an angola seem of that probably the city was assurous bim, and were supposed to originate by some great catastrophe which also he course of their. Level of

declare that the gods de-to punish the wickedness in King Dolora, whose ain irs in the annals of about

Brahmanas, second of the three grand divs. of Vedic literature, being

Brahmana, belonging to the White Yajurveda.

connection with the story of Parasara.

Brahmans, the name given to the priests who form the first of the four great castes among the Hindus: they are the teachers of the doctrine of the Vedas.

Brahmaputra, a riv. rising on the N. side of the Himalayas, in Tibet, about 100 m. from the source of the Indus. After flowing along the N. of the range for over 800 m., during which it receives many tribs, both from N. and S., it turns southward, and after a long course through almost unknown mt. ranges, during which it has a fall of 7000 ft., it emerges into Assam. In Tibet it is generally known as the Tsan-pu, in Assam it is called the Dihong, but there is now no doubt that these are the same river, though this has been ascertained only a few years back. In Assam it is joined by large tribs., and thence flows down to the Bay of Bengal. It has a total length of 1800 m., and is navigable up to Dibrugarh, 800 miles from the sea.

Brahma Samaj, the new Atheistic Church in India, owes its origin to Raja Ram Mohun Roy, one of the greatest men India has produced. He was born in 1772 in the district of Baidwan, and mastered at an early age the Sanskrit, Arabic, and Persian languages. Having discovered the , fallacies of the religious ceremonies practised by his countrymen, he impartially investigated the Hindu partially investigated the Hindu Shastras, the Koran, and the Bible, repudiated the polytheistic worship of the Shastras, and inculcated the reformed principles of monotheism as found in ancient Upanishads of the Vedas. He founded a society in 1816 consisting of Hindus. Texts were read and theistic hymns were chanted, but this society soon died away owing to the antagonism of the Hindus. society for prayer-meetings, which legs. It occurs throughout Asia and may be considered as the foundation in E. Africa, and by the Hindus is of the present B. S. The groundwork regarded as sacred to Siva. of their faith was 'The worship of the Brahms, Johannes (1833-97), a Ger.

famous in anct. Hindu mythology in | About 1850 a schism took place on account of the discovery that the greater part of the Vedas was poly-The advanced party had theistic. nature and intuition as the groundwork of their faith. Branch societies were founded in different parts of India, especially in Bengal, and the new church made rapid progress. Some church made rapid progress. Some of the articles of the B. S. creed may be tabulated as follows: 1. The book of nature and intuition supplies the basis of religious faith. 2. Although the Brahmas do not consider any book written by man as the basis of their faith, yet they do accept with respect and pleasure any religious truth contained in any book. 3. The Brahmas believe that the fundamental doctrines of their religion are also the basis of every true religion. 4. They believe in the existence of one supreme Being or God-a God endowed with a distinct personality, moral attributes worthy of his nature, and an intelligence befitting the Governor of the universe, and they worship Him alone. They do not believe in any one of his incarnations. 5. They believe that the religious condition of man in promotion like the dition of man is progressive like the other departments of his condition in this world. 6. They believe in the immortality and progressive state of the soul, and declare that there is a state of conscious existence succeeding life in this world, and supplementary to it as regards the action of the universal moral government. The B. S. Church numbers about 3000, and considerable progress is being made. There is a fine chapel in Calcutta. See ARYA SAMAJ.

Brahmin, or Brahman Ox, is Bos

indicus, a variety of the ordinary ox of the family Bovide, which is known also as the zebu and Indian ox. It is distinguished chiefly by the fatty 1830 the raja organised a Hindu hump on its back and by its slender

eternal and immutable Being, who is composer, was born in Hamburg, and the author and preserver of the uni-received his first music lessons from verse, but not under and by any his father, studying afterwards under other name, designation, or title, Marxsen of Altona. He appeared in the composition of the compositio verse, but not under and by any maintener, sond, as all other name, designation, or title, Marxen of Altona. He appeared in peculiarly used for any particular public as a pianist at the age of fifteen, being or beings by any man or set of but continued his studies and commen whatsoever. The basis of the position without ceasing until 1853, men whatsoever. The basis of the position without ceasing until 1853, new faith was the Vedas. Soon after Ram Mohun Roy set sail for England, Remenyi. the Hungarian violinist, and took up residence at Bristol, where he died in 1835. The B. S. During this tour he made the acquaint-where he died in 1835. The B. S. genius became his friend, and gave 1841, when Babu Debendra Nath him letters of introduction to Liszt Tarore, head of a well-known Caland Schumann, who both appreciated cutta family, devoted himself to it. He gave a printing press to the Samaj, to be 'the coming composer,' although and established a monthly journal up to that time he had pub. few imknown as the Tallwabodhini Patrika.

director of the court concerts and ful, but was regarded very much as a choral society at Lippe-Detmold; this curiosity rather than an educational appointment he held for four years, with plenty of leisure for study and Johnson. B. later came to London, with plenty of leisure for study and composition. In Jan., 1859, at the Leipzig Gewandhaus, he produced his piano concerto in D minor, a work so new and opposed to convention that at first it was a failure, but, played by Clara Schumann and others, it gradually won fayour throughout Germany. In 1860 B. went to Winterthur, and in 1862 to Vienna, which became his permanent residence. He died there in April. 1897. Though his music was thoroughly classical in spirit, yet its form and treatment were so individual and presented so many new and diffi- one of the chief commercial ports of cult problems that he was not ger understood or appreciated for which is about 100

years; his songs especially were unvocal, and in England were almost | tities of corn, and its docks are noteunknown. Now every singer of any pretensions introduces B. into his programme. He refused to write opera, the nearest approach to it being his cantata Rinaldo. Only two of his leading compositions were inspired from without—the Deutsches Requiem by the death of his mother in 1805, and the Triumphlied by the German victories of 1870-71. Many of his works were produced in pairs having some resemblance in form and expression; this is shown especially in his 1st and 2nd, and 3rd and 4th Symphonies. His numbered works amount to 122, and the collections and studies without opus-number fill several more volumes.

Brahui, one of the races of Balu-istan. The Bs. are generally rechistan. garded as aboriginals, and they certainly occupied the country before the Baluchis, who have driven them into the mts., where they now live a nomadic life. Their language seems

to contain many Hindu words.
Braid, James, Scottish surgeon. He was bornat Fifeir

in medicine was On the burgh.

studies he practised as a surgeon in Manchester till his death in March, 1850. Hisreputation depends upon his work in connection with animal magnetism, a branch of study which then

Goulburn.

Braidwood, Thomas (1715-1806), the first British teacher of the deaf and dumb in this country. and dumon the condity. He was prained out into a complexity of linaa Scotsman, and was educated at ments, growing more and more
Edinburgh University. He became a attenuated as they proceed away
school teacher, and in 1760 opened at from the nerve-cell. The B. is surEdinburgh a school for the deaf and rounded by three membranes or
dumb, following the system of Dr. menings termed the dura mater, the
John Wallis. His school was success-larachnoid mater, and the pia mater.

where he died.

Where he quea.

Braila, or Brahilov, the chief port
(sea and river), for Southern Roumania, situated on the I. b. of the
Danube, 11 m. S.S.W. of Galatz, and
connected by rail with Bucharest
(142 m. S.W.). Trades in corn and
other products. Has a Gk. cathedral.
The Russians burnou R. in 1711. Its The Russians burned B. in 1711. Its docks are newly built. Pop. 58,740.
Braille Type, see Blind.

Brailov, Braila, or Ibraila is a port on the l. b. of the R. Danube, and

exports large quanworthy on account of their size. Pop. about 59,000.

Brain, that part of the nervous system which is enclosed within the cranium. The nervous system of the human body may be divided into two parts: (1) The lymphatic nervous system, consisting of a chain of ganglia or collections of nervous matter bound together by nervous cords and placed on either side of the vertebral column; (2) the cerebro-spinal nervous system, consisting of the B. and the spinal cord, which are continuous with each other. The systems are connected intimately with each other and together serve to co-ordinate the various parts of the body into a harmonious whole, all the functions of every part, whether exercised consciously or not, being dependent upon the proper action of the nervous system. Th

stances. and gre: chiefly made up of nerve fibres and the latter of nerve-cells, which give rise to nerve fibre. Both kinds of matter lie in a matrix called the neuroglia, which therefore constitutes the supporting tissue of the B. matter. Nervo fibres are the conducting elements of the nervous system; fibre consists of an axis-cylinder which is in many cases coated more or less thickly by a fatty substance called myelin. The nerve-cells of the went under the name of hypnotism. or less thickly by a fatty substance Braidwood, a tn. in New South called myelin. The nerve-cells of the Wales, Australia, situated in the co. grey matter consist of protoplasmic of St. Vincent. It is 50 m. S. from nuclei from which certain processes proceed. The axis-cylinder process 15-1806, is in reality a nerve fibre, and the the deat dendrites, or protoplasmic processes, He was branch out into a complexity of fila-

The dura mater is a dense fibrous; membrane which adheres to the inner surface of the skull, and serves both as a feeding membrane for the bone and as an envelope for the B. The arachnoid mater is a thin and transparent membrane, separated from the dura mater by a minute quantity of fluid and from the pia mater by a space containing the cerebro-spinal fluid. The pia mater is a delicate membrane which follows the inequalities of the B. surface, dipping into all the fissures, and carrying the finer blood-vessels which proceed into the substance of the B. The B. itself, when viewed from above, presents an ovoid, or egg-like, appearance.



VERTICAL CROSS SECTION THROUGH THE BRAIN

a, cortex, grey matter of the cerebral hemisphere; b, white matter of the cerebral hemisphere; c, fornix; d, third ventricle; e, lateral ventricle; c, pons Varolii, cut obliquely and showing fibres running from it and forming the crura cerebri; g, median fissure; h, convolutions (gyri); i, fissures (sulci); k, optic thalamus.

parts then visible are the two cerebral hemispheres, separated by a groove from front to back called the great longitudinal fissure. Viewed from below, a short cylindrical portion at the rear communicates with the spinal cord. This is called the bulb or medulla oblongata, while above it but close to it is a white prominence called the pons Varolii. The closely-packed mass at the rear is called the cerebellum.Medulla oblongala is the continuation upwards of the spinal cord. It is about 11 in long and 1 in broad. At first its girth is the same as the cord; it becomes bicord. It is 1 in. broad. lateral by shallow grooves anteriorly and posteriorly. As it thickens the anterior groove is crossed by bundles of nerves from each side, the formation being called the decussation of the pyramids. The groove is carried up-

up to the lower border of the pons Varolii, then becoming constricted as it disappears into the pons. Viewed from the side, the most prominent feature is the olivary eminence, about half an inch long, which marks the position of an underlying nucleus of grey matter. From behind, two swellings run parallel to the medial groove on each side. The inner one is called the funiculus gracilis, and the outer the funiculus cuneatus. The form the funiculus cuncatus. ends in a prominence called the clava. The upper portion of the posterior area is occupied by the restiform body, a rope-like strand which links the medulla to the cerebellum. The medulla is composed of white matter on the surface and grey matter in the interior. The grey matter is, however, much broken up by fibres traversing it in all directions, thus constituting the formatio reticularis. The pons Varolii is a white prominence lying in front of the cerebellum. It consists of two parts: (1) the ventral or anterior portion, which corresponds to the pyramid of the medulla oblongate which disappears into it, and the feet of the crura cerebri which appear to rise out of it; (2) the dorsal portion, which represents a continuation upwards of the formatio reticularis. The ventral part is made up of longitudinal and transverse fibres and the dorsal portion principally of grey The cerebellum, or little B., matter. lies behind the pons Varolii and the medulla oblongata and below the hinder part of the cerebrum. In front and behind there are medial notches which divide the lateral hemispheres. At the bottom of the notches appear a medial lobe which is called the A deep horizontal fissure vermis. divides the cerebellum into an upper and a lower portion. The upper surface is divided from before backwards into the lingula, the central lobule, the culmen monticuli, the monticuli, and the folium cacuminis. These divisions cross both spheres and the vermis. On the under surface the vermis is divided from behind forwards into the valvulæ, the pyramid, the uvula, and the nodule. The hemispheres are divided from behind forwards into the postero-inferior lobule, the bi-ventral lobule, and the tonsil or amygdala. The cerebellum consists of a central mass of white matter covered by a continuous layer of grey matter. The cerebrum, or great B., occupies the upper portion of the skull from front to back. It is connected with the parts that lie below by the mesencephalon, or mid B., about threequarters of an inch long. It consists of a dorsal part made up wards to the pyramid, which expands of the corpora quadrigemina, and a

ventral part composed of the crura sation. With respect to many nervous cerebri, two rope-like strands, apparently emerging from the pons Varolii. In the interior is a canal called the aqueduct of Sylvius, leading from the fourth ventricle below to the third ventricle above. The cerebrum itself is divided from the cerebellum by a membrane called the tentorium. A deep longitudinal fissure divides it into two hemispheres, which are united below by a band of white matter, the corpus callosum. The sur-face of each hemisphere consists of grey matter and exhibits convolu-tions or gyri, separated from each other by depressions or sulci. In each hemisphere there are five lobes, the frontal parietal, occipital, temporo-sphenoid, and central, or island of Reil. The grey matter on the outside. or cortex, extends to a thickness varying from 2.5 mm, to 6 mm. The interior is composed of white matter, but there are certain deposits of grey matter embedded in the basal part of These are called each hemisphere.

the corpus striatum. Functions of the brain.-The B. in man constitutes the main portion of the central nervous system, which acts, as it were, as an exchange, co-ordinating the different nervous impulses, translating the effects of a stimulus into action, and, as far as we know, into thought. Physiology has nothing to do with what the psychologists call consciousness, except indirectly. The ways in which ideas are formed, memories linked and stored, are the concern of psychology, and no satisfactory paral-lelism has yet been established between psychological phenomena and physiological facts. Sensation, however, may be translated physically as well as psychically, and a certain amount of localisation of function in the B. has been demonstrated as regards sensation and movement. The peripleral nervous system consists of threads of nervous matter which penetrate into the remote parts of the body. Some of these nerves serve to transmit impulses from their source to some central ganglion, or nervous mass, whence impulses are again sent forth to impulses are again some string in glands and muscles, resulting in movements. The secretions and movements. nerves which carry the impulses to the central nerve-mass are called afferent nerves, and those which carry the departing impulses, efferent When these nervous messages are carried to the lower nerve

impulses, however, a change in con-sciousness does take place. The impulses which come from the stimulation of the highly differentiated systems of nerve endings in the organs of sight, hearing, touch, taste, etc., cause particular phenomena which are usually referred to under the psychological terms of sensation. efferent nerves then carry away impulses which may have no obvious relation to the impulse from the periphery. That is to say, a highly complex process seems to have been gone through which, in the language of psychology, we call thought. What-ever may be the particular nature of the nervous movements interposed between a mass of incoming nervous impulses and the subsequent departing impulses, it is fairly certain that the seat of those movements is the complex mass of fibres and nervecells which we call the cortex of the fore-brain. When this portion of the B. has been removed from animals, it has been found that they have no power of co-ordinating movements. Certain stimuli may still bring about appropriate reactions, but they do so invariably and without any adjustment to other circumstances. Now there are certain actions which are performed as reflexes, such as coughing, sneezing, breathing, and the actions of the internal muscles. Many of these, however, can be brought under control if necessity prises, e.g. a cough or a succee may be checked. With the fore-brain removed such reflexes are not checked. but occur more regularly and certainly than under normal conditions. Many attempts have been made to connect various portions of the cortex with appropriate differences of function. One of the most interesting was the doctrine of phrenology, which sought to connect the various areas with so-called 'faculties,' such as music, love of humanity, etc. The complex nature of such ' faculties ' is sufficient to condemn the hypothesis. On the other hand, experiment and observation have enabled us to connect certain areas with stimuli arriving from the eyes, the olfactory nerves, and the ear. There are also regions which seem to be intimately connected with movements of the leg, arm, tongue, mouth, neck, and body. Electrical stimul applied to the appropriate point in the B. have been found to produce motions in the particular parts of the body assocentres, the result is a bodily move clated with them. In general, it may ment which has no direct relation to the state of consciousness. That is to say, they are reflex actions, which is of the B. is very scanty, and that general operate without causing sent though such knowledge has been of

great use in localising injuries, etc., it | has thrown no particular light on the general problem of the connection

between mind and matter.

Brain diseases.—These may be the result of injury or organic disease; or, on the other hand, functional disturbances, whose causes may or may not be traced to a physical source. Concussion of the B. results from a blow on the head or a fall from a height. The symptoms may range from a feeling of giddiness to com-pleto insensibility. Vomiting accompanies a return to consciousness, and there may be subsequent disturbance of the normal functions of the B., e.g. lapses of memory. A severe blow may cause a fracture of the skull, and there is then danger of infection from micro-organisms as well as concussion. Tumours of the B. may occur as the result of tuberculous or syphilitic bloodmatter brought with the stream, or may be cancerous in their nature. The B. is of course likely to suffer if the blood-stream is in any way abnormal. If the supply of blood is too small, syncope or fainting results. If one portion of the B. is cut off from the blood supply by plugging up of the artery or other causes, it gradually undergoes softening as a result of mal-nutrition. The general effect of a deficiency of oxygen is lassitude and feebleness, while too great a quantity of carbon dioxide produces drowsiness and eventually causes convulsions. Poisons find their way to the B. in the blood stream. Some of these are produced by dis-turbed secretions in some other part of the body, and result in auto-intoxication, a condition which reacts strongly upon the state of consciousness. Alcohol and other drugs produce characteristic mental phenomena, and the result of lead-poisoning on the B. is to lead to loss of memory and general mental feebleness. Micro-organisms may be carried B., causing delirium and the meningitis, or inflammation of the B. membranes. The B. carries on its work by the aid of nutrient matter carried by the blood, and any overstimulation or excessive exercise of its functions without proper rest and food produces weariness and headache, and may encourage or promote the development of morbid growths which will result in paralysis or This excessive functioning may be supplied by worry, shock, over-work, or violent emotions. stimuli constantly repeated without adequate intervals for rest or stimuli too great in intensity.

Brain Coral, the coral which be-

W. Indian Ocean. It grows at a very So named from the reslow rate. semblance of its form to the brains

of the higher animals.

Braine-l'Alleud, a fn. in Brabant, Belgium, manufs. glass and cotton. Wellington's extreme right was posted here at the battle of Waterloo. Present pop. 8500.

Braine-le-Compte, a Belgian tn. in the prov. of Hainaut, on the Seine. It has cotton-mills, dye-works, and breweries, and specialises in the production of flax of the finest quality. Its pop. is 8176.

Brainerd, a tn. and cap. of Crow Wing co, Minnesota, United States. It is situated on the banks of the Mississippi, in the centre of the state, and at a junction of the Northern Pacific Railway.

Brainherd, David (1718-47), an American missionary, who ministered to the Indians of America. He was born at Connecticut. Educated at Yale College; he was expelled for a statement concerning the religion of one of the masters. He began his missionary duties to the Massachusetts Indians in the same year (1742). He met with the greatest success at New Jersey. He died after the publication of his Mirabilia Dei Inter Indicos, and Grace Displayed.

Braintree, a tn. of Essex, noted for its manufs. of silk, crepe, malt, and beer. It has iron foundries and extensive breweries. As a mrkt. tn. it has some reputation. There is an anet. church (St. Michael) of 1350. Its pop. is 5330.

Braintree, a tn. in the U.S.A. It is situated in Norfolk co., in the state of Massachusetts, 10 m. S.S.E. from Boston. Granite is found in the neighbourhood, and its preparation finds employment for most of the inhab. Its only other claim to note is the fact that it was the bp. of John Adams, the second president of the United

States.

ates. Pop. 5500. Braithwaite, John (1797-1870), Eng. engineer, of London. He ventilated House of Lords by air-pumps, 1820; devised the donkey engine, 1822.Next year his statue of the Duke of Kent was set up in Portland Place. B. constructed the first practical steam fire-engine, and with Ericsson built for the Stephensons the locomotive engine 'Novelty,' the first to run a mile a minute, 1829. With Vignoles he projected and laid out Eastern Counties Railway, 1836-43. He and Ericsson fitted a canal boat with screw propeller. This went from London to Manchester by means of canals, and back by the Thames. With Robertson he was joint-founder of the Raillongs to the Astraidae species, to way Times, 1837. He became F.S.A. be found growing plentifully in the in 1819; M.I.C.E. in 1838. Wrote

Brake, see BRACKEN.

Brake: 1. A well-known fern of the genus Pteris. 2. A general name for dense undergrowth. 3. The name given in various manufactures to the instrument connected with the breaking up of material, also spelled break.' 4. An appliance to stop or retard the motion of a body by the use of a resistance which absorbs part of the energy of the body, also spelled 'break.'

The need for contrivances for controlling the speed of machinery of all kinds has led to the invention of many kinds of Bs. Of the simpler types in common use mention may be made of the block B., the slipper B., and the band B. The block B. consists in its simplest form of a block of wood which, on being pressed against the rim of a wheel, retards its In the case of the ordinary motion. waggon the power is applied by the foot of the driver pressing on a treadle which is connected by a system of levers to the brake-block. In the case of heavier waggons, such as those attached to traction engines. the power is applied by means of a wheel and screw. The slipper B. is commonly used on heavy vehicles when descending hills, and consists of a metal skid or slipper into which one of the wheels fits, and is thus prevented from revolving. The in-creased friction due to the sliding of the wheel tends to arrest the motion of the vehicle. The band B. is used in the case of machines such as winches and cranes, and consists of a band passing round a circular drum e machine. he friction

currer

drum re-

achine. In

the ca and thus produces a current which is made to excite electro-magnets to which are connected metal shoes. The metal shoes becoming magnetised are attracted to the metal rails above which they are fixed, and the friction between shoe-pieces and rails retards the motion of the car.

Supplement to Capt. Sir John Ross's Railway brakes.—The high speeds Narrative of a Second Voyage in Search of a North-West Passage. See Micchanic's Magazine, xiii., 1830, and Minutes of Proceedings of Institution of Civil Engineers, xxxi., 1871.

Broke Capt. Sir John Ross's Railway brakes.—The high speeds naturally brakes. sisted of wooden shoe-blocks which were pressed against the wheels of the tender by means of levers and a wheel and screw operated by the brakeman. A form of B. operated by a chain passing the whole length of the train was formerly in use, and was the first B. invented to be continuous in its action. In the case of the 'clip' B. the resistance is applied by causing the two sides of an iron clip to grip the rail.

Westinghouse brakes.—It is essential that a B. for use on a modern railway train should be continuous, automatic, and quick in action; the use of such a B. is in fact enforced by law. Unless a B. can be continuously applied throughout the length of the train collisions between the rear and front carriages will occur when the latter are suddenly brought to a stop. Moreover, it is evident that a B. which can be caused to act on the wheels of each vehicle is much more powerful than one which only operates on those of the end cars. It is necessary for the B. to be automatic in order that it may at once come into action should an accident such as the uncoupling and breaking away of a coach occur. The modern Westinghouse Bs. possess all these essential qualities. The two kinds at present in use are the Air-pressure B. and the Vacuum B. In both types the Bs. are applied by air pressure, regulated by means of a train-pipe which runs the whole length of the train. In the case of a coach becoming accidentally uncoupled the resulting rupture of the train-pipe causes an alteration of the air pressure, which automatically causes the Bs. to be applied. The original form of air-brake, invented in 1869 by George Westinghouse, and ding force called the 'straight 'air-brake, is not is the pressure exerted by the water automatic in its action. The arrange in a cylinder from which its escape ment of the mechanism is as follows: can be regulated. This type of B. is A supply of compressed air is stored can be regulated. This type of B. is A supply of compressed air is stored used in elevators and other machines worked by hydraulic power. Electric Bs. are now much used on electric which is connected to the piston-rod tramway systems. When a tramway of a steam cylinder, and which can car is travalling at high candidate of the steam required. The train-pipe in con-

with this reservoir is an iron pipe running the whole length of the train, the junctions between the coaches being made of rubber hose. Underneath each coach is fixed a B. cylinder, into which compressed air from the train-pipe can be discharged, resulting in motion of the piston. which operates by means of levers

the B. blocks on the wheels. The shut in, and the pressure of the B. engine driver operates the B. by shoes on the wheels is sustained. It means of a three-way cock, which will thus be seen that the power with

of the brake-blocks well under control. The fact that this B. is not automatic inits action has led to its being superseded by an automatic type.

similar to that used in the 'straight' air B. Under each vehicle, however, is placed a small air reservoir and a plece of mechanism called a 'triple B. cylinder, it will be seen that the action of the B. is affected by variations in the pressure of the air in the train-pipe. The latter is in turn cach coach is greatly accelerated, regulated by the valve in the engine cab connecting with the large reservoir of compressed air. Under normal conditions the triple valve closes the communication between the B. cylinder and air reservoir, and hence keeps the B. out of action. To apply the B. the air pressure in the train-pipe is reduced by the driver at one end of the train or the guard at the case of the air-pressure B., passing other operating a valve. The reduction of pressure in the triple valve closes the driver at one end of the train or the guard at the case of the air-pressure B., passing from the engine cab at one end of the train or the guard at the case of the air-pressure B., passing from the engine cab at one end of the train or the guard at the case of the air-pressure B., passing from the engine eab at one end of the train or the guard at the brake-locks are applied nearly simultaneously with the result that the brake-blocks are applied nearly simultaneously throughout the length of the train. The venting of the train-pipe, the escaping are is vented straight into the B. chamber.

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The venting of the train-pipe under the result that the brake-blocks are applied nearly simultaneously with the result that the brake-blocks are applied nearly simultaneously with the result that the brake-blocks are applied nearly simultaneously with the result that the brake-blocks are applied nearly simultaneously with the result that the brake-blocks are applied nearly simultaneously with the result that the brake-blocks are applied nearly simultaneously with the result that the brake-blocks are applied nearly simultaneously with the result that the brake-blocks are applied nearly simultaneously wi causes a motion of the small piston in

resulting in motion of the piston which operates the Bs. When the air pressure in the auxiliary air chamber has be-

communicates with the train-pipe on which the B. is applied depends upon one side and the compressed air the extent to which the pressure in reservoir on the other. To apply the the train-pipe is reduced. To release B. compressed air is allowed to pass the Bs. the engineer operates a valve whereby the train-pipe is again put whereby the train-pipe is again put into communication with the main reservoir of compressed air underthe brake-blocks to an extent under neath the engine cab. The increased the control of the engineer operating pressure in the triple valve causes a the valve. A further turn of the three-way cock keeps the air in the B. cylinders fixed at the required pressure. The B. may be released by operating the valve so that communication is established between the train-pipe and the atmosphere. It is thus possible to keep the application of the brake-blocks well under control. recharge it ready for another applica-tion of the Bs. Now if through the accidental breaking of a coupling or some other cause one of the junctions Westinghouse automatic air-brake, of the train-pipe is ruptured, the air—This modification of the original pressure within the pipe will be reappliance was invented by Westing-duced to atmospheric pressure, the house in 1879. Compressed air is triple valve will operate as above, stored by means of a pump on the engine at a pressure of about 80 lbs. per square inch. This reservoir is in standstill. Moreover, if part of the connection with a train-pipe which is apparatus becomes defective, resulting in a leakage of the compressed air, attention is at once called to this by the automatic application of the B. The triple valve has been greatly plece of mechanism called a 'triple b. The triple valve' which controls the admission improved by a modification of its of air to the B. cylinder, and it is mechanism, which enables the applithese additions which render the B. cation of the B. to be much more automatic. In the triple valve is a sudden. The quick acting valve, as it small cylinder and piston which will is called, is of great use in the case he caused to move by any alteration of an emergency when it is required in the pressure of the air in the train-to bring the train to a standstill in the Since the movement of this the least possible time. In this impipe. Since the movement of this the least possible time. In this impiston determines the admission of proved arrangement, when a large air from the storage cylinder to the B. cylinder, it will be seen that the in the train-pipe, the escaping air is

By means of an ejector or air-pump operated by the engine-driver, a vacuum of about 20 in. of mercury is obtained in the train-pipe and in the train-pipe and in · space in the

comeless than that in the train-pipe the is also kept a vacuum, as it is in direct alr in the B. cylinder is automatically communication with the vacuum

piston-rod

chamber and train-pipe. The B. is applied by allowing air to enter the train-pipe whereby an alteration of the pressure in the brake-cylinder results in a motion of the piston controlling the application of the B. blocks. If through an accident a breakage of the train-pipe is caused, air at atmospheric pressure is introduced which automatically causes the application of the Bs. The maintenance of the required vacuum is essential to the working of the B. For this purpose vacuum gauges registering the difference between the pressure of the air within the vacuum chambers and that of the atmosphere are fixed inside the engine cab and the guard's van. By means of the ejector the reading is never allowed to indicate less than a certain minimum number of inches of vacuum.

Brake, a tn. in Germany belonging to the grand duchy of Oldenberg. It was for centuries the port of Bremen, until Bremerhaven was founded. Shipbuilding is an important industry, and the chief manuf. is that of woollens.

Brakelonde, see Jocelin de Brake-

LONDE.

Brama, a genus of acanthopteryous fish, belongs to the family bryphænidæ. They are large, gious fish, Coryphænidæ. mackerel-like fishes, of bright colour, and are related to the dolphins. B. Raii, Ray's bream, is 1 to 2 ft. long, of deep-blue colour, with a large and forked tail. It is found chiefly in the Mediterranean, and is edible.

editerranean, and is editer. Bramah, Joseph (1748-1814), an Bramah, Joseph (1748-1814), an English inventor and engineer. He was the son of a Yorkshire farmer, but owing to an accident was unable to work on a farm. He was apprenticed to a cabinetmaker, and later started in business on his own account. most famous invention was that of the lock which bears his name, the patent for which was taken out in 1778. Seven years later he patented the hydraulic press, in which inven-tion he had considerable help from one of his workmen. He designed a machine for the Bank of England which printed and numbered banknotes. He invented a great number of other things, amongst which may be mentioned machinery for the manuf. of aerated waters, and a papermaking machine. He suggested the locomotion of ships by means of screws in 1785.

Bramah's Press, a hydraulic machine used for applying considerable pressure to material such as off-bearing seeds, or for lifting heavy bodies to a required position. It consists essentially of a massive cylinder in which a piston or plunger works, altered carrying at the top a platform on Angelo.

which the goods to be pressed are placed: the cylinder communicates with a smaller cylinder, in which a smaller piston works by force applied by hand or a small engine. At the bottom of the small cylinder is a pipe leading to a reservoir of water, the pipe being fitted with an upwardly opening valve. The pipe connecting the two cylinders is fitted with a valve opening towards the large cylinder. When the smaller piston is moved upwards, water is drawn from the reservoir into the smaller cylinder, and when the piston is moved downwards the water is forced through the valve in the connecting pipe, being prevented from returning to the reservoir by the valve at the bottom of the small cylinder, while the valve in the connecting pipe pre-vents water returning from the large cylinder during the up-stroke of the small piston. Thus water is gradually forced into the large cylinder and the plunger is carried slowly upwards. Suppose the diameter of the large cylinder to be 12 in., and that of the small cylinder 1 in., then the proportion between the two surfaces will be as 1 to 2304. The small piston will have to travel through a total distance downwards of 2304 in. to force the large plunger up 1 in., but the plunger will exort a pressure up-wards 2304 times that of the pressure communicated to the small piston by the engine.

Bramante, or Brammante, Donato Lazzari (1444-1514), a celebrated architect of the Italian Renaissance period. He was born at Urbino, and at a very early age showed such a genius for drawing that he was placed under a celebrated master. He seems to have been very successful as an artist, but was drawn far more to architecture. He travelled through Lombardy examining the various art remains of the country, and executing various works at many of the towns which he visited. Drawn later to Milan, he remained there for some years, finally leaving it for Rome. Here he was almost imme-diately commissioned by Cardinal Caraffa to rebuild a convent, and by the cardinal he was introduced to Pope Alexander VI. He was regarded as an authority on architecture, and was frequently consulted. Julius II. employed him frequently, and gave him some of his most important works to do. His greatest work, however, was the part which he was given in the rebuilding of St. Peter's. His work, however, was hurried, as it had been when rebuilding the palace of Cau-celleria, and many of his plans were altered after his death by Michael

painter, real name Bartolommeo ing crypt. Suardi, was probably born at Milan, where he studied under Foppa of Brescia, Leonardo da Vinci, and especially under Bramante (hence his When the latter left nickname). Milan in 1499, B. succeeded to his position. The Brera Gallery and some of the Milan churches contain many frescoes and other paintings by him and his school; his chief oil paintings are all sacred, the 'Holy Family' and 'Crucifixion' in the Brera Gallery, and 'The Dead Christ' in the diverse of Say Senders, being in the church of San Sepolero, being fine examples. He was not a prolific painter, and sev. of his works are lost, so that in some of the greatest collections (e.g. London National Gallery, and Dresden) he is not represented. He visited Rome in 1506, and executed some frescoes for Julius II., but these were afterwards replaced by some of Raphael's.

Brambanan, a region in Surakata prov., Java. It possesses many specimens of Hindu temples which are characterised by an absence of mortar Of these their construction. edifices the most imposing is a cruciform temple whose various extensions cover an area of 500 sq. ft.

Bramber, a par. on the Adur, in the Lewes div. of Sussex, England; pop.

under 285.

Bramble is a name frequently applied to that species of Rosaceæ known ns Rubus fruticosus. See BLACKBERRY.

Brambling, or Fringilla montifringilla, is a bird related to sparrows, fringitia, is a bird related to sparsing finches, and buntings. It greatly resembles the chaffinch, but is larger, and it inhabits many parts of Europe and Asia. It is known also as the

bramble finel, or mountain fineh.
Bramhall, John (1501, 1662) on Inich.

divine, was e

College, Can advanced in the Church, and in 1633 went to Ireland with Wentworth. He was imbued with the strength of mind of his master, and his Church policy in Ireland was on very similar lines to the policy of thorough. His church policy, in fact, destroyed the chances of the Royalists in Protestant Ulster. He crossed over to England on the outbreak of the Civil War, and

and it is noteworthy for its manuf. of

Bramantino (c. 1450-c. 1530), Italian | early Eng. church contain an interest-

Brampton, a tn. in the co. of Derbyshire, near Chesterfield. Pop. about

591

Brampton, a town in Canada, situated in the co. Peel, Ontario. It is an important railway junction, and is 20 m. N.W. from Toronto.

Bramston, James Yorke 1836), Catholic bishop, educated in Northamptonshire and at Cambridge. Studied at Lincoln's Inn, 1785, under Charles Butler, and publicly joined the Catholic Church, 1790. Became a theological student at the English College, Lisbon, 1792. While at Lisbon, B. was much occupied with mission-work, largely among the In 1802 the British in garrison. In 1802 the Catholic mission of St. George's-inthe-Fields was entrusted to him at home; he became vicar-general of the London district under Bishop Poynter, 1812. Bishop of Usule in partitus infidelium, 1823; vicar-apostolic of London district, 1827. All his life B. suffered from diesase, but he continued his work almost up to the last, and was renowned for his charity. See Gent. Mag., July 1836; Brady's Episcopal Succession.

Bramwell, Byrom, Scotch physician of high ability, born 1847. Educated at Cheltenham College, Edinburgh Uni-

W 15

Physicians (Edinburgh); senior ordinary physician (Edinburgh Royal Infirmary); gov. medical referee for Scotland; lecturer on principles and practice of medicine and on clinical medicine (School of the Royal Colleges, Edinburgh); lecturer on medical jurisprudence at university of Durham College of Medicine, Newcastle-on-Tyne, 1871. B. resigned general practice and appointments 1874, and those in Newcastle 1879. Among his publications are: Atlas of Clinical Medicine; Diseases of the Spinal Cord; Lectures on Aphasia; Practical Medicine and Medical Diagnosis, and many contributions to medical journals. Bramwell, Sir Frederick (1818-

1903), engineer, was the son of a London banker. Having gained experience as apprentice, draughtsman, and manager in an engine factory, he on the outbreak of the Civil war, and and manager in an engine factory, not after the death of the king, took set up for himself in 1853 as a conrefuge on the Continent. The Restoration saw him restored to favour, expert witness in the law-courts and and he became bishop of Armagh, parliamentary committee rooms he a see which he retained until his death.

Brampton, an anct. tn. in Cumbers land. It is 9 m. E.N.E. of Carlisle, in many scientific societies, and was unsurpassed. The took a leading part land. It is 9 m. E.N.E. of Carlisle, in many scientific societies, and was a difficulty of the City and Guilds In chairman of the City and Guilds In check and gingham cloths. The pop. stitute, and of the Inventions Exhibi-was 2494 in 1901. The remains of an tion, 1885. He was on the council of

Bramwell, George William Wilshere (1808-92), Eng. judge, retired 1881, son of a banker, born in London. Soon left the banking business to study law at Lincoln's Inn and Inner Temple. Became barrister, 1838, and went the home circuit. Member of the Common Law Procedure Commission, 1850, resulting in Common Law Procedure Act. QC, 1851; knighted 1856; sat in Court of Exchequer till it ceased to exist, when he became judge of intermediate Court of Appeal, 1876. At his suggestion the word 'limited' was added to the titles of companies that want to limit their liability. He was partly re-sponsible for Companies Act, 1862. Granted title Baron B., 1882. Sound law, common sense, and clear expression marked his judgmeuts. Good examples of his decisions are: Ryder v. Wombwell (L.R. 3 Ex. 95); Stonor v. Fowle (13 App. Cas. 20). See Fairfield's Life, 1898, the best if not the only authority on B. Bramwell, John Milne, Scotch physician, born at Perth, 1852, educated at Perth and Edinburgh University. After a year's teavel be presented for sion marked his judgments. Good

After a year's travel he practised for some time at Goole, Yorks. Became noted after 1889 for his publications on hypnotism, and his treatment by on hypnotism, and his treatment by suggestion. He married, 1875, and settled in London, 1892. Among his works are: James Braid, Surgeon and Hypnotist; Hypnotism in the Treatment of Insanity and Allied Disorders; Hypnotic Amesthesia; Dipsomania and its Treatment—by Suggestion; Hypnotism and Treatment by Suggestion; 1900

Suggestion, 1909.

Bran, the husk of wheat and other grain. In bread manuf, the bran is separated from the fine flour, while in the preparation of brown bread it is included as an ingredient. Its composition of water 14 per cent., fibrin 15 per cent., starch 44 per cent., fat 4 per cent., liquose and cellulose 17 per cent., give it a certain nutrit 72 value. It is also used in making company foods, and in cleaning goods in doing works. Its adoption as a politice medium and as an internal cure for catarrh has been justified.

Bran, often alluded to as 'The Blessed,' son of Llyr, and a dignity of the Celtic underworld. His especial sphere was that of the poetical and musical arts, and he was represented as being of gigantic height. In later times he was regarded as a saint who had brought the cross from Rome to Britain, and is a striking instance of how the early church was successful in metamorphosing heathen delties into 'saints.' Hence his title of 'the Blessed.' An ancient Welsh poem

the Royal Society, and in 1888 president of the British Association.

Bramwell, George William Wilshere (1808-92), Eng. judge, retired spell against foreign invasion, but Arthur disdained to take advantage of magic in guarding his kingdom, and had the head exhumed.

Brancaleone d'Andalo (d. 1258), a Bolognese noble of the 13th century. In 1253 the Roms, were oppressed by their nobility, and they chose B. as their deliverer. He laid siege to the nobles in their own strongholds. His army was supplied by the Roman people, who gave him power to act as he pleased. He laid low 160 fortresses, put to death nobles and robbers alike, and even took away some of the pope's power.

Brancaster, a fishing vil. and par. in the N.W. div. of Norfolk; pop. under 1000.

Branchiæ, sec Gills.

Branchidæ, people of Asia Minor, descendants of Branchus. Also the descendants of Branchus. Also the name of their city, near Miletus, famed for its town. famed for its temple of Apollo Didymæus. The British Museum contains scated statues that once bordered a

sacred way to the temple. Consult Herodotus, iii.
Branching, in botany, is divided into the dichotomous and lateral types, and by it is understood the development of similar members, e.g. of roots or stems. In dichotomy the growing apex merely divides into two, and each half grows independently; in lateral B. the branch occurs as an outgrowth beneath the apex. In this second form, the parent member continues to grow and sends out these lateral branches in regular order, when the B. is called Racemose, or Indefinite, or ceases to grow after producing one or more lateral branches, and these carry out the dividing process themselves, when the B. is said to be Cymose, or Definite. In stems the branches arise as buds in the axils of leaves and consequently develop laterally. The cymose B. is the more complicated: when one daughter axis is given off at a time the B. is uninarous and if

no scorpion, or scorpion-like, if developed always on the same side helicoid, or snail-like. When two daughter-axes are given off simultaneously the B. is biparous, while more than two makes it multiparous. In roots the B. is always interal, usually racemose, but occasionally there is a cymose system. In leaves the venation shows the B.; if there is one mid-rib it is racemose, if there are sev. prin. veins it is cymose. In the B. of an inflorescence there are cymose, racemose, and mixed types,

the last including such a form as a entered the law. In 1863 he became raceme of cymes, e.g. lilac and horse-president of the Orange Free State, raceme of cymes, e.g. lilac and horse-chestnut. The four chief types of racemose inflorescence are the ruceme itself, the spike, the umbel, and the capitulum, which are described under special headings.

Branchiopoda is the name given to an order of Crustacea which have sev. rairs of swimming-feet, either leaf-ike or lobed. They are usually to be found in fresh water, and never in the sea, though they occasionally inhabit salt lakes. It is divided into two groups, Phyllopoda and Cladocera.

Branchiostoma was the name given by Costa in 1834 to a curious creature he found on the Neapolitan shore. Two years later it was rediscovered by Yarrell, described in his History of Brilish Fishes, and now known by the

name he gave it of amphioxus (q.v.).
Branco River, a riv. in N. Brazil.
It rises in the Parima Mts., joining
the R. Negro after a course of 400 m.

Brancovan, Constantin (1654-1714), the most eminent member of the famous Roumanian family of B., or Brancoveanu, which originally came from Servia and was connected with the family of Branko. C. B. became Prince of Wallachia in 1689, after assisting Turkey in the Austrian War of 1690, and formed alliances with Austria and Russia. In consequence of this he was accused of treason, and deposed by Turkey in 1710, and im-prisoned in the fortress of Yedi Kuleh at Constantinople, where he was tortured in an attempt to make him reveal the whereabouts of the large fortune which he was said to have concealed. In 1714 he was beheaded, together with his four sons and his friend, Enake Vacarescu. His death has been made the subject of numerous

has been made the subjection maintenant. Roumanian popular ballads.
Brand, in Corn, see BURNT EAR.
Brand, Henry Bouverie William (1814-92), first Viscount Hampden and twenty-third Baron Dacre, because the subject of came private secretary to Sir George Grey in 1846, and entered parliament in 1852 as member for Lewes, holding the seat till 1868, when he was elected for Cambridgeshire. From 1859 to 1866 he was parl, secretary to the Treasury, then Liberal whip till 1868. In 1872 he was elected Speaker without opposition, and re-elected in 1874 and 1880. The most remarkable event in his speakership was when, on Feb. 2, 1881, he closured the debate on the Coercion Bill, on his own authority, after a forty-one hours' sitting. 1884, on his resignation, he received the title of Viscount Hampden.

and was four times re-elected, in 1869, 1874, 1879, and 1886. In 1876 he visited England to attend the conference arranged by Lord Carnarvon to discuss the establishment of a S. African Confederation. B. opposed the scheme, which failed. At the be-ginning of the war between the Transvaal and Great Britain in 1880, B. preserved a neutral position, and acted as one of the mediators at the

peace conference in 1881. Brand, John (1744-1806), an Eng. antiquary, born in Durham. He re-ceived his education at the local grammar school, after which period he was sent to Oxford by the aid of friends. He took Holy Orders there and became rector in the city of London. In 1784 he was elected secretary of the Society of Antiquaries, a position which he held till his death. His work, Observations on Popular Antiquities, is a standard

work.

Brande, William Thomas (1788-1866), an Eng. chemist. He was born in London, and after an education at Westminster became apprenticed to his brother, an apothecary, though chemistry had greater attractions for him. He was appointed professor of chemistry to the Society of Apothe-caries in 1812 and later succeeded Sir Humphry Davy in the chair of chemistry of the University of Lon-don. He delivered about this time a course of lectures to the Board of Agriculture. A favourable reception was given his first work, Manual of Chemistry (1819), which was followed by a Dictionary of Science, Literature, and Art in 1842. He died while working at a new edition of this work, at Tunbridge Wells.

Brandenburg, a prov. of Prussia. It forms the centre of the modern mon-archy. The Mark of B. from which the same site, nor did it fall within the same boundaries, for the Mark of B. then included portions of Saxony and Pomerania. The province is very low and flat; at Potsdam the level above Near Silesia sea is a mere 15 ft. the country has a more undulating surface. Generally the soil is poor and consists to a large degree of sand, Only its canals and numerous rivs. prevent its classification among the barren spots of Europe. A large number of the people are employed in the industries of shipping, agri-culture, and cattle rearing; they comprise a number of Fr. and Dutch natives, though by far the majority are Germans. Numerous distilleries Brand, Jan Hendrik, Sir (1823-88), natives, though by far the majority S. African politician, born at Cape Town, son of Sir H. C. Brand, speaker and factories erected for the manuf. of the Cape House of Assembly, and of cotton goods, woollen goods, linen,

found in various parts of the prov. The gov. of Potsdam and Frankfurt occupy the whole area, for Berlin the capital is in a separately governed quarter. The Mark of B. was united with Prussia in 1618, and in the reign of King Frederick William I. cut itself free from Poland and became Prussia '

William

the peri the Wenu people, Bremnbor, is situ-ated 38 m. W.S.W. of Berlin. The tn. is in two parts, the old and the new, which are situated on different sides of the R. Havel. The castle and noted for its remarkable crypt. of the people are employed ir manuf. of woollen and silk goods,

baskets, leather, and starch. Its in 1905 was 51,251. Brandes, Carl Eduard Cohen, Danish sian and Sanskrit especially. 1880 he an income of 4000 crowns was guaranwas elected to

Democrats of one of the bes

(Opposition). Both he and his brother Among his publications are Denwere ardent Radicals | Frankrig in 1882,

character sketches, künst, 1880, and his pilkinst, 1881, won him fame. Till 1883 B. was assistant editor of the Morgenbladet; from 1902 of Politiken. He soon showed a taste for dramatic art. Among his plays are: Laegenid-ler, 1880; Gnygende Grund; En For-lovelse: El Besog; El Brud, 1885; Kjaerlighed, Overmagl; Under Loven, 1891; Mohammed, 1895; Asgerd; Vera, 1904; Prima donna, 1901; Haardl imod Haardt. The chief merit of his plays lies in the psychological analysis and delineation of character. B. was author of the novel En Politiker, 1889, and of Jung Blut, 1899, a romance which caused much discussion, leading eventually to prosecu-tion and a fine. He also wrote a political review. Fra '85 til '91, ex-pressing ultra-Radical views. He was connected with the publication of the Nineteenth Century, edited by Georg, 1874-5. See Vapereau, Dictionnaire Universal des Contemporauns, 1893; Bricka, Dansk Biografisk Lexikon. Brandes, Georg, a Danish critic of

literature. He was born of a Jewish family on Feb. 4, 1842, at Copenhagen. In 1864 he graduated at the university of that tn. His first literary works, consisting of esthetic and philosophic treatises aroused a hostile attitude and earned him a reputa- was prevalent among mutinous Eng. tion as a sceptic. This opinion was soldiers. The letter D was tattooed

sugar, tiles, glass, and machinery are strengthened by a remarkable course of lectures, delivered to audiences of great number, and which were sub-sequently pub. as The Great Ten-dencies of Nineteenth-Century Litera-These lectures were delivered between the years 1872-75. Still more acrimonious became the reception of actinomous became the reception of his essay on the later intellectual position of Europe, and he was made the subject of many bitter and spiteful attacks. In 1877 he produced the Danske Dietere, which is acknowledged to be a triumph of analytical psychology. The frenzied attacks of the lates of the lates and the second of the lates of the l still levelled against him by his more bitter opponents became so hostile cathedral, of the 14th century, stand that he was compelled to leave his on an is. in the riv. The cathedral is native tn. for Berlin. Here, in a more produced

. 877, Esains year, and A change

in 1905 was 51,251.

Brandes, Carl Eduard Cohen, Danish author, b. 1847, brother of Georg B. He entered Copenhagen University, 1865, taking courses in Oriental and comparative philology, studying Persian and Sangkrit especially 1880. 'tim by his compatriots, who

the condition that he should on subjects of literature.

dwig Holberg three

Branding, the practice of marking possessions by the fixing upon them of a distinctive mark; also a form of criminal punishment. The word is derived from the Teutonic briunan, to burn, and the cu-tom is of very early date. It was accomplished by means of a hot iron. During Greek times, slaves were branded with a \(\Delta \), while in Rom. days robbers and runaway slaves were branded with an F (fugitivus). Later it was abolished upon the face and the arms and legs were branded. Till 1832 Fr. galley-slaves were branded with a T.F. (travaux forces). In England during 1547, forces). In England during 1547, under the administration of the Statute of Vagabonds, gipsies and tramps were branded with a V. on the breast, while brawlers were marked with an F. (for Fraymake). brawlers The custom was not abolished till 1822. The implement used was generally a long bolt with a wooden handle, the iron being shaped at the handle, the iron being simped as one end with the letter desired. A form of B. with cold irons became the fashion in the 18th century for persons of a higher class. Naturally the punishment was pure nominal. This punishment was pure nominal. of course led the way to its complete abandonment. In 1829 a form of B.

with ink or gunpowder, while those | made her début at the Opéra Comique. soldiers who had carned a reputation for thorough worthlessness were marked B.C. (bad character). In 1858 the British Mutiny Act ordered deserters to be marked with a D below the left armpit, an act which was repealed in 1879. See Old Time Punishments, W. Andrews, 1890.

Brandis, Christian August (1790-1867), a German philologist and his-1867), a German philologist and historian of philosophy. Born at Hildesheim, he was educated at the University of Kiel. He graduated at Copenhagen in 1812. He continued his studies at Göttingen, and submitted his Von dem Begriff der Geschichte der Philosophie as a 'maiden 'essay at Berlin in 1815. He helped in Bekker's ed. of Aristotle, and in 1821 became professor of philosophy at Bonn University. His other works include Aristotelius Theophrasti Melaphysica, 1823, while his greatest work was a Handbuch der Geschichte der griechisch-rom. Philos.. 1835-66.

Brandl, Alois Leonhard, Austrian philologist and author, born at Innsbruck, 1855. He studied at Vienna University, then at Berlin under Müllenhoff and Zupitza, specialising in Old English. He came to England, 1879, studying under Sweet and Furnivall. In 1884 B. became professor complete at Prague; at Göttingen, 1888 ? (succeed-1885 ; (succeeding '1895. His chief works are: Thomas of Erceldoune, 1881; S. T. Coleridge and die Englische Romantik, 1886; Geschichte der mittelenglischen Literatur, 1892; Shakspere, 1894. Since 1896 B. has edited Archiv für das studium der neueren Sprachen. He also edited a neueren Sprachen. He also edited a neuer issue of Schlegel and Tiele's new issue of Schlegel and Tieck's translation of Shakespeare, 10 vols., 1897. Published Aus. Literature, 1908.

Brandling, or Lumbricus fétidus, an annelld with a curiously striped body, is one of the earthworms most

valued by anglers.

Brandon, a mrkt. tn. of Suffolk. It is situated on the Little Ouse, and has a pop. of 2327. The tn. has a grammar school, founded in 1646, and has some trade in corn, coal, and timber. qı.

Ιt position in one of the most richly cultivated parts of the dominion.

Brandon, Richard, succeeded his father, Gregory B., as public executioner, 1640. Said to have executed Charles I., Strafford, Laud, and

1877, playing Lady Sangazure in The Sorcerer. She toured in U.S.A., and then returned to London, appearing at the Savov Theatre in many of the Gilbert and Sullivan operas, and in other plays. She acted in Iolanthe in other plays. She acted in Iolanthe (1882), Princess Ida, The Mikado, Pinafore, The Yeomen of the Guard, The Gondoliers, The Pirates of Penzance, and Ruddigore. She also appeared in Mock Turtles, Tobacco Jars (1889), Captain Billy, Haddon Hall Mirette (1894), The Rose of Persia (1899), The Emerald Isle (1901), Morris England (2000) (1899), The Emerald Isle (1901), Merrie England (as Queen Elizabeth), Little Hans Andersen (Adelphi, 1903), and Veronique (Apollo, 1904).

Brandt, Enevold, Count (1738-72), a Danish politician. He was under the patronage of Struensee, who gained for him the appointment of chief warder to Christian VII. during his insanity. In this post he had great influence at court. Becoming jealous of Struensee, he formed a conspiracy against him, but was finally involved

in his downfall.

Brandt, or Brant, Sebastian (1458-1521), Ger. poet and prose writer, was born at Strasburg. He studied at the university of Bale, where he distin-guished himself by his successes, and afterwards became a professor there. He returned to Strasburg to practise law in that town, and was honoured by the Emperor Maximilian in being made Count Palatine. His best known book is Das Narrenschiff (The Ship of Fools), pub. in 1494, one of the most famous books of the time. The idea of the book is supposed to have been suggested to B. by a ship being borne in a procession, and he used the idea to satirise all sorts of people. He pictures people in the various walks in life with different vices, and invites them to enter the ship of fools. this book he seeks the cause and remedy of vice, and writes with the object of making men see their folly, hoping by so doing to reform them. The greatness of the book consists chiefly in the influence which it had on later times and in the powerful way in which it spread the spirit of the Reformation to countries beyond Germany. It is even said that texts were taken from it by preachers, and it is supposed to have given Erasmus the idea for his Praise of Folly. book has been trans. into most of the European languages. Alexander Barclay trans. it into Eng. 1509, and Thomas Watson in 1517, under the title The Shyppe of Fooles.

Brandy, the spirit obtained by the Charles I., Strafford, Lauu, and others. Died full of remorse, 1649. in the British Pharmacopound others. Brandram, Rosina (1846-1907), an spirituous liquid distilled from wine spirituous and matured by age, and containing

not less than 35\(\frac{1}{2}\) per cent. by weight of 43\(\frac{1}{2}\) per cent. by volume of ethylohydroxide. The Bs. of best repute are distilled and matured in France in the districts in which the grapes are grown. These districts are situated around the town of Cognac, the name itself being a graphy of R B and the first the Chester Co., Pennsylvania. It flows around the town of Cognac, the name itself being a graphy of R B and the first Chester Co. itself being a synonym for B., and comprise parts of the departments of Charente and Charente-Inférieure. The output averages about 5,000,000 gallons per annum, but is dependent on fluctuations in the wine crop. For a long period the vines of this and other districts of France suffered greatly from the attacks of the phylloxera, but increased scientific knowledge, leading to a system of replantledge, leading to a system of replanting and hybridising, has enabled the vine-growers to cope with the disease. After the distillate has been prepared from the wine it is stored in casks of oak-wood, which imparts a brown colour to the spirit. B. used to be described as a straw-coloured light but the selectric is required. liquid, but the colour is invariably deeper, a certain intensity of tint being arrived at by the addition of caramel or burnt sugar colouring to the spirit. The maturing occupies several years in the case of the finest Bs., but too long a period is disadvan-Bs., but too long a period is disadvantageous, as the evaporation of the
'alcohol may result in too great
weakening of the spirit. B. is seldom
bottled 'straight;' most palates are
suited by a blend of different vintages and districts. The blending is
carried out in vats shortly before
bottling, and it is the proper carrying
out of this process which determines
the quality associated with particular
names. Some proprietory brands names. Some proprietory brands obtain a distinct flavour by means of flavouring essences. The composition of B. varies with the district and the character of the blend. Ethyl alcohol is usually present to the extent of is usually present to the extent of from 40 to 68 per cent. by volume, the remainder being water and other alcohols. In a distillate of 100 litres of cognac, C. Ordonneau found the following by-products: Propyl alcohol, 40 gms.; butyl alcohol, 2186 gms.; amyl alcohol, 838 gms.; kexyl alcohol, 6 gm.; heptyl alcohol, 15 gm.; ethyl acetate, 35 gms.; ethyl propionate, hityrate, and caproate, 3 gms.; cmantic ether, 4g ms.; aldehyde, 3 gms.; and traces of acetal and amines. In 1904 many sellers of spirits were prosecuted and fined for selling under the name of B. spirits selling under the name of B. spirits derived from potatoes, beetroot, etc., and the present position is that B. is presumed to be distillate of wine un-

popular spirit has been largely taken by whisky.

Brandywine Creek, a stream rising in Chester Co., Pennsylvania. It flows into Delaware and finally empties itself into Christiania Creek at Wilmington. A battle was tought on its banks during the American War of Independence in 1777.

Brangwyn, Frank, an Eng. painter, born at Bruges, 1867. On coming to England B. attracted the notice of William Morris by his work, and went for a time to the latter's studio. His frequent travels in the E. greatly influenced his artistic development. influenced his artistic development. Rich colouring and well-balanced design mark his productions. His decorative panel, 'Modern Commerce, is in the Royal Exchange, his 'Trade on the Beach' In the Luxembourg. Italy, Germany, America, and Anstralia also possess specimens of his work. B. also made designs for book-decoration, pottern tangeter, and work. Is also made designs to cook decoration, pottery, tapestry, and furniture. He became A.R.A., in 1904. Consult The Studio, 1898; and Shaw Sparrow's Frank Branguym, 1910.

1007 med

in front rendered speech impossible; in some cases a knife was used, so that the slightest movement caused great pain. Any woman guilty of a petty breach of the peace was marched through the streets by the beadle with the brank upon her head, making herself a subject for the insults and jeers of the populace. An iron bidle of somewhat similar design was adopted for the punishment of immorality up to 1856.

Brankovich, George, Prince of Servin from 1427, with intervals, to 1457, was driven into Hungary as a refugee by Sultan Murad II. After a period of c

pedition aga

Janos, and Murad asked for a ten years' truce, offering excellent terms, which were accepted. But on receiving news that a Venetian fleet was about to attack Murad, the allies broke their agreement and marched S. B., fearing Moslem vengeance, sent secret in-telligence to Murad, and also dissuaded Albania from Johing the league. Murad consequently won the battle of Varna (Nov. 1444), Wladis-las being killed and Hunyadinarrowly "owed to keep his

a and Hungary at variance, and in a duel with a

eastern div. of Dorsetshire, England. Brant, Joseph (1742-1807), chief of the Mohawk Indians. He assisted the British during the Indian and revolutionary wars. His energies were quite as indefatigably exerted on behalf of peace in later years. He became a zealous Christian in his later wars. life, and trans. the Bible into Mohawk. He visited England for the purpose of raising money on behalf of the crec-tion of the first Episcopal Church in

Canada in 1786. A monument is erected to his memory at Brantford. Brantford, a tn. of Brant Co., Ontario. The Grand R. is navigable to within 21 m., and gives the tn. some importance as a port of entry. The tn. manuis, iron goods, stoneware, and agric. implements. Its pop. in 1907 was 20,713.

Brantôme, a tn. in dept. of Dordogue, S.W. of France, famous for abbey remains (A.D. 770); pop. (1906)

1230.

Brantôme, Pierre de Bourdeille (1540-1614), a famous French his-Bourdeille torian. He was born in Périgord, and was educated at Paris and Poitiers. He took orders, and was given several very fine benefices. He, however, had no inclination to enter the Church, and chose arms as his profession. He speedily gained for himself a great reputation as a soldier, and came into contact with many other fine soldiers during this period of religious wars in He travelled extensively, France. visiting Scotland, England, Spain, Portugal, and Morocco. During the reign of Charles IV., he fought on the side of the Catholics. An accident compelled his early retirement from the field, but not before he had to a certain extent been won over to the reforming party. He spent the remainder of his life in writing those memoirs for which his contact with so memors for which his contacts with so many of the leaders of the period had so fitted him. As an historian he is not altogether trustworthy, but his Memoirs have a fascinating style of their own, and he draws a realistic, if not very charming, picture of the profligacy and vice of the court life of the period. His works were not pub-lished until some considerable time after his death.

Bras d'Or, Lake, a gulf belonging to the Atlantic Ocean, which very nearly divides Cape Breton Is. into two parts. It is irregular in shape.

Branksome is an eccles. par. in the and the first quadrangle, except the stern div. of Dorsetshire, England. upper storey, date from the foundabrant, Joseph (1742-1807), chief tion. In the hall and chapel, 1663-6, the Mohawk Indians. He assisted the Gothic and Grecian styles are, curiously enough, combined. In the 12th century, however, a B. Hall existed, and in 1334 some students migrated to a house in Stamford, known as B. Hall, finding the factions in Oxford a hindrance to learning. An anct. knocker, in the shape of a nose, which was brought in 1890 from this house to the hall in Oxford, may well be the origin of the name. numary fellowships have been added to the original foundation for a prin. and twelve fellows. In 1691 William Hulme made provision for twelve scholars, and for an endowment eight senior scholarships open to members aiready in residence. Robert Burton, author of The Analomy of Melancholy and Walter Pater both graduated at this college.

Brasidas (d. 422 B.C.), one of the leading warriors of Sparta during the early days of the Peloponnesian War. He was born somewhere about the year 450 B.C., the exact date, however, is not known, and became prominent is not known, and became prominent about the year 430 B.C. as a leader against the Athenians. He rapidly came to the front, and occupied a number of responsible offices in the state. His main ambition was to crush the power of Athens, and with this object in view he joined Perdicas, the king of Macedonia, after having conducted a campaign in Thrace. But that he was true to his main ambition is objects from the main ambition is obvious from the fact that he refused to help Perdiccas after the objects of his alliance had been fulfilled. A number of important towns were won over to his side, and when in 423 a truce was made with Athens by Sparta, B. refused to give up some of the towns he had taken, or which were claimed by the Greeks. In the same year he fought again in alliance with Perdiccas, but quarrelled with him, owing to the desertion of the Spartans by the Macedonians during one of the battles. The truce with Athens came to an end in 422, and before Amphipolis B. routed the Athenians under Cleon, but was himself killed in the battle. He was buried in Amphipolis, and became one of the heroes whose memory Sparta delighted to honour. As a warrior he was very courageous, and as a general quick in forming his plan and the isthmus in the S., which joins of campaign, and equally quick in the two pieces, is just a little more carrying it out. For the details of his than a mile in breadth.

Brasenose College, Oxford, was Thucydides, whilst some references founded by William Smith, bishop of are made to his career and exploits Lincoln, and Sir Richard Sutton of Prestbury, Cheshire. in 1509. The main front, facing Radeliffe Square in the Niger delta, S. Nigeria, said to

be named from the B. rods exchanged | arms belonging to the dead, together by early traders for oil and slaves.

Brass is a metal which is composed of copper and zinc, though the term is used now generally to include bronze. It has been known from very early times; it is mentioned in ancient Scripture history as being manu-factured into instruments of music, ornaments, and various other things. In all probability these were not made from B., but from bronze, since we have no clue as to the composition of the metal. The Romans used an alloy which they called auricalchum, and this seems to have been B. Monumental brasses are the carliest traces of the use of the metal in Great Britain. In the reign of Henry VIII., the export of B. was strictly forbidden, a fact which points out that the manufacture of B. was extensively carried on in England.
The former method of manufacture was that of mixing with powdered zinc ore, small quantities of copper.
The mixture then was heated in large pots over a furnace. The modern process is that of mixing metallic zinc with copper, in crucibles, or in a reverberatory furnace, the copper being first reduced to a molten state. and then the zinc added, also in a melting state. When crucibles are used, there is much less waste. The molten metal is then poured from the crucibles into moulds to form ingots for remelting. The B. trade ingots for remelting. The B. trade in England is carried on chiefly at Birmingham. The various processes are casting, rolling, and drawing, stamping, tube drawing and casing, and B. finishing. B. wire is used in immense quantities for the manufacture of pins, paper-maker's wire web, shoe rivets, etc. B. finishing includes dipping, burnishing, lacquering, etc. When an article in B. is made, it goes through a cleaning pro-cess in acid, and then it is dipped into a solution of nitric acid. For the pro-cess of 'burnishing,' polished steel tools are used, and then the article tools are used, and then the arcicle is washed in a weak solution of acid, after which it is dried in sawdust. When 'lacquering 'is done, the work is heated, and while in this state, a coating of varnish, made of seed lac dissolved in spirit is spread over the surface of the article.

Brees Monumental or Sayuk

Monumental or Sepulchral, are brass plates which are in-laid in polished stone. They are used to commemorate the deceased. They are to be found in old churches, being frequently, the floor. The figure of the dead person is usually engraved of T. B., the celebrated railway continuation of the floor of the floor of the floor of the dead person is usually engraved of T. B., the celebrated railway continuation of the floor of the fl emblem is inscribed.

with an inscription, are also cut in the brass. If the brass is in the form of an effigy, the coat of arms and the inscription are engraved on separate plates, let into the same slab. metal called latten is used sometimes as a substitute for brass. The custom of laying down M. B. is certainly of great antiquity, though the exact period of its inception is unknown. They are considered by some authorities to be of French origin, but no evidence has been found to substantiate this view. At Stoke d'Abernon in Surrey is to be found the earliest English example of M. B., that commemorating Sir John d'Abernon, who died in 1277. died in 1277. That of Simon de Beauchamp, who died very early in the same century, which is the earliest recorded, is not extant. Many brasses undoubtedly were destroyed by the chances of war, or by the iconoclastic hands of the Puritans. Such as have escaped, apart from a purely anti-quarian value, are exceedingly useful in presenting an accurate representation of the costumes of their period.

Brass Estuary, or riv., is an arm of the Niger delta, Western Africa, E. of the Nun mouth. B. city, on its banks, is in lat. 4° 35' N., whilst the riv. itself falls into the sea at long. 6° 15' E. The surrounding country is in-

habited by energetic savages, called Brassmen after the city. Charles Etienne ethnopriest grapher; priest he went to America in 1845, and was first professor in Quebec Seminary, then vicar-general at Boston (1846-48), and for the next fifteen years a missionary in Mexico and Central America. While in Guatemala he trans the Popol Puh, containing the sacred legends of the Quiché Indians; he also compiled a Quiché grammar, and wrote sev. vols. on Mexican autiquities and on Indian picture-

writing. Brassey, Thomas (1805-70), an Eng. railway contractor. Born near Chester, he was educated at the local school. He began life as a surveyor, and thus acquired the outlook and experience necessary to the calling he subse-quently adopted. His railroad operations were quickly spreading all over the world. Among his chief contracts are Great Northern Railway, 1817-51, and railways in France, Italy, Canada, He died at Australia, and India. Hastings on Dec. 8, 1870, after bulld-

upon the metal, or, in some cases, the tractor. He was born at Stafford figure of the cross or another sacred in 1836. He was educated at Rugby The coat of and afterwards at University College

Oxford. Here he graduated as B.A., where he associated with advanced obtaining honours in history. In 1866 Liberals and brought back their ideals he was called to the bar, while in 1865 he was returned to parl as a Liberal. He devoted himself particularly to naval questions, and is the author of many reliable works upon that subject. He represented Hastings from 1868-86. He filled the position of civil lord to the admiralty from 1880-83, and till 1885 was secretary. valuable statistical work earned him increased honour. He became pre-sident of the Institute of Naval Architects in 1893-95, and was made a lordin-waiting in 1894. As lord warden of the Cinque Ports he officiated in 1908. Lord and Lady B. toured round the world in his yacht, the Sunbeam. record of these travels was published by Lady B., who died at sea in 1887. Lord B. married again in 1890. He published British Seamen (1877) and the Brilish Navy, the latter of which works is his best. He was created carl in 1911.

Brassica is the generic name of a number of Cruciferous plants which are found in Europe and Asia, and include several well-known British species. Many of them are cultispecies. Many of them are cultispecies, their various parts serving as the cabbage, the southern part of Norway. It confood. B. oleracea is the cabbage, tains some very rich forest land. The which has derived from it, B. ports of Kragero and Brevik are acceptable. Scotch kail. B. Boltralis. Bratslav, a tn. in the valley of the savoy cabbage, B. gemmifera, Brussels-Polish province, became Russian in sprouts. B. (or S.) alba, the white Pop. 8000.

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Bratslav, a tn. in the valley of the savoy cabbage, B. Raba, the white Pop. 8000.

Bratslav, a tn. in the valley of the savoy cabbage, B. Cabb common in British corn-fields.

Brathwaite, Richard (c. 1588-1673), an Eng. poet. He entered Oxford Unithe line, foct. He therefore the day of sixteen, passing thence to Cambridge. He settled later in London, and took to play-writing. He produced The Golden Fleece in 1611, which was a collection of poems and three further works, and a fresh vol. of poems in 1614. In the follow-ing year he wrote a collection of satirical compositions called A Strappado for the Devil, which followed the of George Wither. His first marriage was followed by a period of retirement, during which he continued his literary work. He died at Richmond in Yorkshire, 1673. Barnabce's Journal is the only noteworthy work among his many publications.

Bratianu, Ion Constantin (1821-91),

with him to Walachia. In 1848 he took part in the Roumanian rebellion, and was prefect of police at Bucharest under the provisional republican gov. When the rising was crushed he, with other exiles, escaped to Paris, but still continuing his republican propaganda he was in 1854 fined and imprisoned for sedition. In 1856 he returned home and took his place thenceforward as one of the Liberal leaders. He had much to do with the election of Prince Charles of Hohenzollern to the throne of Roumania in 1866, and was one of the ministry up to 1870. In 1876 he became Premier, and was thus head of affairs during the great war of 1877, in which Roumania, with the help of Russia, achieved her independence. His pre miership lasted until 1888, and was marked by extensive reforms, espe-cially in education and commercial affairs. After the return of the Conservative party to power he narrowly escaped impeachment in 1890. Besides

turnip, and its variety B. Napus is a framework of boards, iron plates, or the wild rape, B. Rapa being the wild brickwork, built transversely in the turnip. B. rampestris olcifera is the galleries of mines, to regulate the colza, and B. Sinapis the charlock, flow of ventilation. In cases of emergency, sheets of heavy canvas, called

B. cloths, are sometimes used.
Brattleboro', U.S.A.. a post vil. of
Windham co., Vermont. Its industries comprise the manufacture of organs. carriages, furniture, and machinery, while a large portion of the inhab. are engaged in sugar refining. Its pop. in 1900 was 5257.

Braun, Alexander (1805-77), botanist, held the chair of botany at Berlin University from 1852 to his death. His special field of research was the morphology of plants and the lower cryptograms, but he also suggested fresh classifications.

Braun, August Emile (1809-56),archæologist, a native of Gotha. He was educated at Göttingen and Munich, and journeyed to Rome in 1833. Here he became secretary to the Archaelogical Institute. His Roumanian statesman, was born at many works on art and mythology are Piteschi, Walachia, and at the age of of considerable value, and contain seventeen entered the army. A few Vorschule der Kunstmythologie, 1854, years later he went to study in Paris, and Die Ruinen und Museen Korus, 1854, which appeared in It., Ger., and Eng. His death took place at Rome.

Braun, Karl Ferdinand, Austrian physicist, born at Fulda, 1850, educated at Fulda Gymnasium, and Marburg and Berlin universities. In 1872 hegraduated with a work on the vibration of chords. He has been successively professor at Marburg, Strass-Tübingen, ınd

· of the Physical 1895 he became

professor of physics at Strassburg University, and director of the Physical Institute. His best known researches are the so-called 'B.'s cathoderaytube ' and ' the wave circuit.' This last is the basis of all arrangements for wireless telegraphy, which he improved by inventing a method allowing the sender's energy to be increased at will, and by another by which despatches can be sent into a particular direction. His calculation of the constant of gravitation, by the torsion balance method, agrees closely with that of Professor Boys. He and Hartmann constructed an apparatus for measuring the intensity of the magnetic field by a fine bismuth wire. B. showed the identity of electric waves and light. His latest works are on demonstrating metallic gratings so find as not to be within the micro-scope's range. In 1901 his Drahtlose Telegraphie durch Wasser und Luft appeared at Leipzig. In 1909 he and Marconi jointly won the Nobel Prize for Physics.

Braunau is a tn. and the cap. of a and boiled. After that, all the bones gov. dist. in Bohemia, Austrie manufs. of cloth, woollen, and c goods. Its possesses a famous dictine abbey, 1321, and a cl 1683.

ganese sesquioxide, Mn₂O₂.

Braunsberg, a tn. of E. Prussia. is situated on the Passarge, 8 m. fro its mouth. It manufs. leather, feit, and machinery, while an extensive trade is carried on in yarn, timber, and grain. Its pop. in 1900 was and grain. 12,497.

Brauwer, or Brouwer, Adrian (1608-40), Dutch painter, born, according to some biographers, at Haarlem, and according to others at Oudenarde. There is a large collection of stories about the life of this artist, but most of them are of very doubtful authenticity. Many of these stories represent him as leading a very dissipated life, but they are overdrawn and exaggerated, although he did frequent taverns from which he has painted many scenes, one of which is in the Louvre. Among his pictures

Brays small to to Co. pel

anc

Pop. onno. Brava, or Barawa, is a tn. in E. Africa, situated on the coast.

the chief port from Cape Guardafui to Mombasa. It has a considerable trade with India and also Arabia. Bravo, an interjection and a sub-

stantive, from the It. bravo, superlative bravissimo = most excellent. means 'well done 'or 'excellent.

Bravoes were a band of people in Italy who offered their services for money. They were originally members of the Italian families of nobles, and often fought for their cause, but they degenerated into ruffians who would do anything for money.

Bravura, an Italian term applied in music to a composition, and sometimes to the class of performance. Music of the B. type is characterised by a vigorous motif with many diffi-Mozart

es. style. r creating a

he brawling scenes so common during the early days of the Reformation caused an act to be passed punishing the offender. Under this act persons so convicted, either in Ireland or England, whether clergy or laity, are liable to a fine not exceeding £5, or imprisonment not more than two months.

Brawn is a dish made with pig's head. The head is thoroughly cleansed

> the whole is chopped . It is set by means which it has been e placed in moulds.

Braunite, the mineral form of man-nese sesquioxide. Mn-O.

Braxfield, Robert Macqueen, Lord (1722-99), a Scottish judge, was ad-

· diffi -'45.'

Made a ford of session in 1776 with the title of Lord B., he became lord justice-clerk in 1788, and in the sedition trials of 1793-4 carried the name of the lorders of Carrier by

When asked a political a political answer was, 'Bring me the prisoners, and I will find you the law.' Coarse and illiterate, yet keen and vigorous in intellect, he is well pictured in Stevenson's Weir of Hermiston.

Bray: 1. A small par, in Berkshire near Maidenhead. It has a pop. of 2978 (1901), and is situated on the l. b. of the Thames. The church contains some valuable brasses. coastal tn. of Wicklow co., Ireland. It's beautiful surroundings have inare: 'A Quarrel between Two creased its importance, and it is Peasants,' at Dresden; and 'Spanish known as the 'Irish Brighton.' It has Soldiers playing at Dice,' at Munich. a pop. of 7424 (1901). 3. A small

in London, and studied with a view to a stage career. Her marriage in 1818 with Charles Stothard prevented this. She married after her first husband's death the Rev. A. E. Bray, the vicar of Tavistock, in 1825, and on his death in 1857 she came to London, which was the scene of her death. Among her many works, comprising romance and travel, are: The Borders of the Tamar and Tavy, Life of Thomas Stothard, R.A., and A Peep at the Prices. at the Pixics.

Bray, Sir Reginald (d. 1503), architect, was the son of a privy councillor of Henry VI. Henry VII. was his loyal friend, and made him a life grant of the Isle of Wight, and Carisbrook Castle. B. took part in the Battle of Blackheath. 1497, and was afterwards made a knight banneret. He built St. George's Chapel, Windsor, to which he also made generous contributions, and in which his tomb may still be seen. It seems certain that he designed the beautiful Henry VII.'s Chapel at Westminster, although he died before its completion

Chapel at Westmusser, died before its completion.

Bray, Thomas (1656-1730), an Eng.

Brighthropist. He was divine and philanthropist. He was born in Shropshire. After being educated at Oswestry school, he went to All Souls' Collego, Oxford. His graduation took place there in 1678. He obtained the rectory of Sheldon in 1690, where he wrote a portion of his Calcehelical Lectures. These lectures agreed for him a ride earned for lectures him a His energies were now reputation. directed towards the institution of public libraries in England and in and America. Phenomena tended his efforts, no less Phenomenal success than eighty in England and thirty-six in America being constructed before his death. The Society for the Promotion of Christian Knowledge developed from this scheme. He went to Maryland in 1699 as the Bishop of London's commissary, but returned in 1706 to a living at Aldgate.

Bray, Vicar of, the notorious Vicar of B. in Berkshire. He was Simon Aleyn, and was appointed vicar during the reign of Henry VIII. He maintained his position during the reigns of Edward VI., Mary, and Elizabeth by the expedient method of accommodating his religious principles to these in previous II. ciples to those in power. It was his ambition which he achieved. The plants, nuts, oils, wax, coffee, sugar, fickle vicar is made to live through the reigns of Charles II., James II., all the precious and semi-precious

dist. of France, in the old prov. of Normandy, now included mainly in the E. div. of Seine-Inférieure, but also in the dept. of Oise. It is on a cretaceous plateau.

Bray, Anna Eliza (1790-1883) (née Kempe), Eng. author. She was born in London, and studied with a view to a stage career. Her marriage in 1818 with Charles Stothard prevented this. She married after her first husband's death the Rev. A. E. Bray, the vicar success led to the Beauties of England and Wales, 1801-15. They also wrote Londoniana, 1829, and A History of the Tower of London. See Britton's Memoir, 1855.

Brazil, a city in the U.S.A., situated in the co. Clay, Indiana. It is about 15 m. N.E. from Terre Haute.

Brazil, the largest state and republic in S. America, comprising 1/2th of the terrestrial surface of the globe, 2600 m. long, by 2500 broad. It extends between lat. 4° 30' N., and 33° S., and between long. 35° and 70' W. Almost the whole of B. is in the southern hemisphere, it is nearly sixteen times as large as France, and is the fifth largest country in the world.

Geography andresources. - B. possesses one of the most magnificent riv.systems in the world. The Amazon, navigable throughout its course. practically the traverses entire country, and by means of its many affluents waters the whole state. Of the rivers the more important are the Parana, Madeira, Parnahyba, São Francisco, and Iguassu, the falls of which are the third largest in the world. The Rio Grande and the Uruguay also drain large tracts of country. It is now possible to cravel 6446 m. on the river systems of B. in Brazilian steamboats. B. is a country of many mt. ranges. Half of its surface consists of an elevated plateau, the mean alt. of which is from 2000 to 3000 ft., with here and there an iso-lated range of mts. from 5000 to 7000 ft. high (Itataia, 9000 ft.). Towards the E. coast we find the highest summits, ranging from São Francisco on the N. to the southern part of the state of Rio Grande. The other prin. ranges are those of the Brazilian Andes, where nearly all the affluents of the Amazon have their source, and those ranges which separate the valleys of the Amazon and Orinoco. The coastal range is divided into the Serra do Mar, Serra do Orgãos, Serra da Estrella, Mantiqueira, Tingua, Espinhaco, Pyrences, and Paraná Plateau. The resources of the revublic appropriately public are practically inexhaustible.

metals are found or grow in com- diamond fields are near Diamantina parative abundance, and it may safely be said that no country in the world is so rich in natural resources There were in 1910 fifty-two rubber companies in operation with a capital of £2.000,000, and M.Plane has estimated that the output is capable of being doubled. It is only the few initiated in this country who are aware of the wonderful natural richness of B., and it may suffice to state that only a few miles from the riv.

that only a few miles from the riv. that only a few miles from the riv. that only a few miles from the riv. that only a few miles from the riv. that only a few miles from the riv. the native races may well give the ethnologist pause ere he attempts any able timber. natural drugs, and vegetable riches of ever described into the awaiting the axe of the discovery of the merchant, and biologist. Fibre-protection of the characteristics of the Mongolian during plants are too one of the land Proto-European dements which ducing plants are, too, one of the greatest sources of wealth in the republic, and one of the least exploited. These are chiefly employed in making These are chiefly employed in making sacking for the export of coffee. Canhamo, or Brazilian hemp, is a valuable plant, cultivated in the state of Rio on 1.000,000 square metres of land. Sisal and pita are also extensively grown. Unfortunately it does not pay to export any but the finest timbers by reason of heavy carriage rates. The hardness of most of the varieties renders them less acceptable varieties renders them less acceptable to furniture makers than they were half a century ago, and mahogany may be said to have receded in commercial value. On the other hand, peroba, vinhatico, ipé, canella, piuna, and other woods are distinctly marketable, and fetch such prices as £5, £6, and £7 the cubic metre locally. The exportation of nuts is large, and that of medicinal plants, quinas (furnishcinchona), angelica, quassia, gentian, and ipecacuanha is enormous. Agriculture is principally concerned Agriculture is principally concerned with coffee, sugar, cotton, cocoa, and tobacco. In 1908-9 the export of coffee was 1.500,000 bags of 60 kilos each. Some 300,000 tons of sugar are produced annually, and in 1904 160,000 bales of cotton were grown. Cercals are secondary to these, but by no means unimportant. Some no means unimportant. 30,000,000 head of stock is killed, exported, and used locally in a year, the bulk of which is utilised for canning or ment essence. The metals precious and semi-precious are found in comparative abundance, the prin. gold mines being situated in Morro Velho and Passagem in the state of Minas Geraes. The average yield is 12 grammes per ton. In spite of nearly 350 years of mining, hardly a mostly resease without some new dispasses without some new dis-At Olho d'Aguaan alluvial

was recently discovered from which 2200,000 worth of gold has been taken. Irregularities, 1 1906 the total value of diamonds 1 Dutch made exported was £120,000. The prin. many attempts to wrest the land from

in Minas Geraes, Bagagem, Cannaviciras, and Central Bahia. Other minerals of importance found in B. are coal, agate, amethysts, asbestos, beryls, copper, graphite, jasper, iron. lead, manganese, and talc. In 1909 there were some 66 British mining companies owning properties in B., the cap, of which amounted to over £8,000,000.

Ethnography.—The othnography of

and Proto-European elements which go to make up the American red race. Constant wandering, inter-crossing, Constant wandering, inter-crossing, re-grouping, and other causes have contributed to an unprecedented racial confusion. The Arawaks are widely distributed over an area extending from the R. Paraguay to the extreme N. of the S. American continent, the Tupi-Guarani occupy a ter. so vast as that between the Rs. Maroni in Fr. Guiana and the Plate to the S; the Tapuyas are found E. of the Cordilleras from the Peninsula of the Cordilleras from the Peninsula of Goajira on the N. to the borders of Chili, whilst the Caribs extend from the Upper Xingu in the heart of B. to Cuba and Haiti in historical times. All these peoples, except where they have come into contact with civilisation, live the life of hunters, trappers, and fishers, and the majority of them dwell far from civilised communities. The religion of most of the Arawaks and Tupi centre round the figure of Jurupari, a species of forest-demon,

ately poisoned, tribal freemasonry being placed on a purely masculine basis. The non-aboriginal inhab, of the country are principally of Portuguese origin, but Basque, Schavonic, Teutonic, and Syrian elements strongly predominate. The predominance of the white is only partially assured outside of the urban centres. Large numbers of Asiatic settlers, Japanese, Syrian. Chinese, assist to swell the pop. B. has an approximate pop. of 20,000,000 people, occupying an area of 5.682,415 square miles.

History.—B. was discovered by Pedra Calmal a Posturassenavigator, and the posturassenavigators.

nturers soon

, over which appointed in irregularities,

Its original colonists, but all of these Rifle Association has branches in were unsuccessful, and, the invaders every state, and the police force is finally rebuffed, a period of peaceful development set in. In 1699 the goldfields of Minas Geraes were discovered. and the interiors of the states of Bahia, Goyaz, and Matto Grosso were opened up and settled by groups of adventurers called Bandeirantes, who were attracted to these regions by stories of the fabulous wealth they were said to contain. In 1 Brazilian ports were opened 1808 grazilian ports were opened to European commerce, and in 1821 a constitution was granted by the Portuguese Crown, but the Portuguese Cartag effectives and the Portuguese effectives effective effectives effective effectives effective effet guese Cortez afterwards repudiated it, a step which was followed by the declaration of the independence of B. by the patriotic young prince regent, who proclaimed himself as Pedro I. In 1831 he was compelled to abdicate, and the second and last emperor came to the throne in 1843. In 1865 the Paraguayan War commenced, and was carried on until 1870, by which time the pop. of the rival state had become practically decimated. It cost upwards of £63,000,000, and many valuable lives. In 1888 slavery was abolished, and in 1889 the emperor was forced to leave B. peror was forced to leave B., and a

has enjoyed a season of peace and prosperity such as it has not experienced since its colonial times. In 1904 the third Pan-American congress was held in B., and did much to bind closer the bonds existing between her and her neighbours.

Government and administration.—
B. consist
united in that and a senate of 63 members sits for nine years. Gov. is carried on by the president and six secretaries of state. The internal affairs of state may not be interfered with by the Union, and each state must provide for its own necessities, but the Union decrees duties and taxes on imports, and maintains posts and telegraphs, banks and custom houses. States may create export duties however. Interference with or aid of religion is prohibited. There are not less than four

Education is free.

semi-military in character. The peace footing of the army is 18,000, but all citizens from the age of twenty-one to that of forty-four are liable for service. The navy is in a high state of efficiency, the revolts of recent years notwithstanding. Its prin. object is defence of B.'s enormous coast-line. It consists of 3 Dreadnoughts, 2 coastguard ships, 2 scouts, 3 torpedo cruisers, 2 gun-boats, and 13 destroyers, all of modern The crews are smart and

build. active, and the officers highly trained. Towns, etc.—In the prin. cities of B., Rio de Janeiro, Santos, Bahia, modern civilisation may be seen at its best in S. America, the police, sanitary, hospital, and other services being of the most advanced description, and equal to those of the first European cities. Living is expensive for Europeans, rents, furniture, and clothes being especially dear. There is every opening for enterprising European commercial firms. The Brazilians of the cities are cultivated, and passionately attached to litera-ture, music, and the arts, and national expansion on these lines has been rapid. The standard of living is astonishingly high, and if the best furniture, carriages, and other luxuries are imported, the disposition exists to purchase these locally where occasion offers. The climate of Rio is now remarkably healthy, its reputation as a fever-ridden community having quite vanished since the new scheme of sanitation came into force. Emigrants are welcomed and assisted in the most practical manner, but little discrimination is made between grants of land and aid to Europeans and Asiatics, and the British immigrant would find himself treated very much in common with the Syrian and other less desirable newcomers. Large Ger. colonies exist in various parts of the country, and indeed Ger. expansion is a feature of modern Brazilian life, the Teuton having turned many of the best parts of the country into veritable national preserves. If the British commercial classes desire to have a hand in the future of Brazilian trade they should water no time in trade they should waste no time in taking steps towards the consolidation of their interests in the republic.

deputies for each state. Adult suffrage is the law with certain exceptions.

Literature.—Agassiz, Journey in Brazil; Bates, Naturalist on the River Amazon; Burton, Explorations of the Highlands of Brazil; Hutchison, Report on Trade Conditions in Brazil, republican forces. The civil service is obligatory as regards marriage. Brazil, pub. by International Bureau Education is free. of the American Republics, 1891; Army and navy.—The army has Kidder, Brazil and the Brazilians; now been placed on a much better Santa Anna Nery, Land of the footing than previously. The National Amazons: Le Brésil, Paris, 1898: Le

Brésil_(Bernardez), Buenos Ayres, 1908; Dias, The Brazil of To-day.

Brazil Cabbage, or Chou Carabe, is a term applied to several species of Araceæ of the genera Xanthosoma, Colocosia, and Caladium. They have edible rhizomes and the leaves are also eaten.

Brazilian Grass is the term applied to a Cuban species of Palmæ known as Chamærops argentea, and the adjective is therefore inaccurate. The leaves of the palm are cut into strips and used in making chip hats. humilis, an allied species, is the only

European palm.

Brazil Nut is the seed of the fruit of a plant belonging to tropical S. America. The plant is a species of Lecythidacee in the genus Berthol-

letia (q.v.). Brazil Wood is the name given to the heart-wc plants of the g · crista and C. nerican

species which yield a red dye.

Brazing, a process of uniting two pieces of brass or copper, or either, by means of soldering, i.e., the applica-tion of a metal composition similar in its properties to 'cement.' The ingredients of the solder vary with the metals to be joined. When the process is completed the join is of extraordinary strength.

Brazos, a riv. of Texas, U.S.A. It rises in the Staked Plain and runs 950 m. in a S.E. direction, emptying itself finally in the Gulf of Mexico. It is navigable for 40 m. at all times, but at high tide for 250 miles.

Brazza, the most important of the Dalmatian Isles, in the Adriatic Sea. It is also the most thickly populated. Its area of 152 sq. m. is mountainous in character, the highest point reaching 2578 ft. There are quarries of the finest marble. The chief the is San Pietro. Pop. of island, 24,408.

Brazza, Pierre Paul François Camille

(1852-1905), Fr. explorer and minister, the founder of the Fr. Congo, born on board ship in Rio de Janeiro harbour. During the Franco-Prussian War of 1870 he operated in the Fr. fleet. He made the famous oxploration of the Ogoway in 1878, and later received from the Fr. gov. 100,000 francs for exploration in the Fr. interest in the Congo. Here he secured large tracts of land for France turned again later and increased the work till in 1885 he had founded twenty-seven Fr. stations, of which Franceville was the chief. He was made governor of the Franceville. made governor of the Fr. dependency of the Congo in 1886. That post he held till 1898, when an inquiry was

however, in France itself, and he was accordingly acquitted. In 1905 he organised an expedition to ascertain the truth of certain rumours of crucity to the natives, and on the completion

of his report died at Dakar.

Brêka, a tn. of Bosnia, situated on the r. b. of the R. Save, in the prov. of Dolnia Tuzla. It is 74 m. N.E.

from Sarajeva.

Breach, a legal word connoting generally the violation of a duty imposed upon one by the terms of a written agreement or by the policy of the law. A B. of Contract is where one of two parties to a contract or actionable agreement breaks obligation which the contract agreement imposes upon him. consequences of a B. of contract are that a right of action is at once con-ferred upon the party injured by the B., while in some cases, e.g. in contracts to supply a consignment of goods by instalments, the injured party is exonerated or 'discharged' from performing the rest of the obligations imposed upon him. Not every B. of contract amounts to a B. of a vital condition so as to entitle the injured party to rescind. Some Bs. are said to be merely of 'warranties,' as distinct from conditions, and en-title the injured party to suo for damages only. A B. of Covenant is damages only. A B. of Covenant is where a party breaks a clause in an agreement (usually under seal) whereby the covenantor either vouches for the truth of certain facts or binds himself to perform or give something to the covenantce. B. of Promise means the B. of any promise the fulliment of which is legally enforceable, but the phrase has become especially associated with the B. of a promise to marry. A B. of Trust means the non-fulfilment by a trustee of duties accepted by him, and imposed upon him by the terms of the trust instru-ment. In cases of fraudulent conrersion of trust property the trustee is liable to criminal as well as civil proceedings. B. of the Peace in criminal law connotes any act producing or tending to produce a B. of the king's peace, e.g. murder, affray, assault, challenge to fight either by word or letter. The king's peace is a comprehensive notion by the aid of which the crown establishes a right to be a party to all criminal proceed-ings or pleas of the crown. It has its origin in ancient feudal times when the king was actual overlord of the realm, and an affray therein was therefore justifiably deemed to be analogous to an insult offered to a guest in a private house. Prison B. denotes an actual breaking out of instituted regarding criticism of his prison as distinct from a mere escape, administration. The fault was found, The consequences vary according to

law offence of rescuing goods from the custody of the law after the officer of the court has impounded Prosecutions them upon a distress. seldom take place, as the landlord can recover treble damages by a civil action. B. of Arrestment in Scots law means the paying away of money in one's hands on which a legal 'arrest'

one s names on which a legal arrest, has been laid, thereby manifesting a contempt for the law.

Breaching Tower, called Beffroi, was a tower figuring prominently in the sieges of ancient and mediæval days. The tower was movable and renerally as high as the town walls. During siege it was brought close to the wall by means of wheels. It conthe wall by means of wheels. It contained, posted at its different stages, bowmen, who were protected from the streams of boiling oil of their opponents by a covering of raw hides. Often the lower stage or 'floor' conbattering-ram. It was tained a popularly called a 'sow.

Bread, a food prepared by baking flour obtained by grinding cereals as wheat, rye, millet, barley, cats, and maize, or other vegetable products, as beans, pease, tapioca, etc. Breadmaking appears to have been prac-tised from the very earliest times, as cakes of barley have been discovered in Stone Age dwellings. Baking was understood by the ancient Egyptians and Chaldcans, and it is recorded of Abraham that he commanded Sarah to make ready three measures of fine meal, knead it, and make cakes upon the hearth. The grinding of grain appears to have been one of the duties of the women-folk of ancient households. The primitive mill con-sisted of two cylindrical stones, the upper one revolving about an axis fixed in the centre of the lower one. A hole bored eccentrically through the upper stone admitted the grain, which was thus ground between the flat surfaces of the two stones. A handle fixed in the rotating stone enabled the woman to turn it round, and in the case of a large mill the work was performed by two women sitting opposite each other. Suc' referred to in women shall be

one shall be ta left.' The Romans established public bakehouses, from which free distributions of B. frequently took place. Throughout Europe the place of B. as the most important food-stuff has the most important been unquestioned from the time of the Roman empire. In temperate latitudes by far the most important source of bread-flour is the grain of

the crime for which the prisoner is in used; maize flour is made into cakes custody. Pound B. is the common in parts of the United States, and millet B. is used in the southern parts of Europe. Wheat-flour consists anof Europe. Wheat-nour consists approximately of starch, 72 per cent.; nitrogenous matter, 14 per cent.; water, 10 per cent.; fats, 2-25 per cent.; and mineral salts, 1-75 per cent. When a larger proportion of the outer covering of the grain is milled, the relative amounts of starch, mineral matter, etc., are altered. The essential stages in the making of ordinary B. are the making of dough, in which the flour is wetted, salt added, and yeast introduced; the 'rising' of the dough, when the yeast multiplies in the material, giving rise to little vesicles or bubbles of carbonic acid gas; and the actual baking. The effect of yeast is to make the B. light or full of little spaces, and B. thus prepared is the chief food of civilised peoples, being in general more palatable and digestible than closer - textured, unleavened variety. In making what is called 'aerated B.,' the carbon dioxide is first dissolved in water under pressure, and the flour mixed with the water while still subjected to pressure. The dough is ejected from the machine and is cut into loaves as it emerges; it then 'rises' owing to the liberation of bubbles of carbon dioxide in the interior. Baking powders are also used for the purpose of causing bubbles of gas in the dough. They consist of two substances such as sodium carbonate and tartaric acid. with perhaps an admixture of flour to effect a more uniform distribution. The powder is mixed with the flour, and when kneaded with water the carbonate is acted upon by the acid, with the result that carbon dioxide is liberated. As tartaric acid is frequently impure, other baking powders containing phosphoric acid or alum and potassium bisulphate are frequently used. In mixing the dough on a large scale a 'sponge' is first prepared. This consists of part of the flour to be used mixed with a large proportion of water and the amount of yeast required for the whole batch, together with a small quantity of salt. The sponge is allowed to ferment for from six to ten hours, and then mixed with the rest of the flour, water, and sait. The kneading which is required for the mixing of the dough is often done in a machine consisting of a trough or cylinder in which blades revolve, thus thoroughly incorporating the different materials. The baking is done in an oven consisting of a vaulted chamber about 10 ft. long, 8 ft. wide, and 2 ft. high. The heating is effected by a furnace wheat. In more northerly latitudes, The heating is effected by a furnace rye, oats, and barley are commonly or by means of super-heated steam

carried in pipes on the top and bottom of the chamber. B. in Great Britain must be sold by weight, and must not be adulterated by substances specified in the Weights and

Measures Act, 1889. Breadalbane, the title assumed by John Campbell, son of Sir John Campbell, about the year 1677. He had played an important part in the bell, about the year 1677. political history of Scotland, and practically by purchase became Earl of Caithness. He was, however, compelled to relinquish this title, and was in 1681 created Earl of Breadalbane and Holland, and received also a viscountcy and four baronies in the peerage of Scotland. Although nominally of the Presbyterian faith, he helped Lauderdale, and on the acces-sion of William III. was one of the few men of authority in Scotland. He was entrusted with the task of pacifying the Highlands, and succeeding in his object, gaining considerable wealth in the process. He was partially responsible for the Glencoe massacre, although his share in the atrocity did not become known until some considerable time later. He sat later as a representative peer in the British House of Lords after the Union, although he had not voted for the Union. Later, during the '75 he gave assurances of loyalty to both sides, and endeavoured to make as much as he possibly could out of it. He died in March 1717. He was succeeded by his second son, who became Earl of B., and who died in 1752. The third earl, the eldest son of the second, was noted as a diplomatist who occupied high positions in the diplomatic service, being ambassador to France and Russia. He was a strong sup-porter of Sir Robert Walpole, and died in 1782. All his sons having died before him, he was succeeded by a cousin who became marquess of B. in the English peerage. With the decease of the second marquess the marquessate became extinct, but the earldom passed again to a cousin, whose family still retain the title, and to whom the marquessate was restored in 1885.

Bread-fruit is obtained from Artocarpus incisa, a tropical species of Moraceæ which flourishes chiefly in the S. Sea Is. The fruit is spurious and forms a sorosis; it is roasted by the natives and eaten as bread. The Nicobar B. tree is Pandanus odora-Nicobar B. tree is 1 amandanaceæ, tissimus, a species of Pandanaceæ, Gardenia

Alicastrum, a tree of the order ing the onward movement of the Moracce, which grows in tropical waves. The new B. at Aberdeen and America and the W. Indies. This the Dover Admiralty pler are exfruit is an achene and is edible when amples of this class. (2) Sloplug struc-

popular name given to the edible tuberous roots of Psoralea esculenta. The plant is leguminous, and occurs in N. America. The yam (q.v.) has similar roots, and both are eaten boiled or raw.

Breadth is a term applied to a picture indicating a certain effect of grandeur. If a picture possesses breadth no one detail strikes the spectator more than another, but he views the picture from a general standpoint. This effect is sometimes obtained by putting as few details as possible into a picture, a great deal being dependent upon the portraying of light and shade. It consists really in transmitting to the canvas the scene or whatever the subject may be as a whole, giving as true a representation of the original as possible. Turner's pictures are among those specially characterised by their breadth of treatment.

Bread-tree is the name given to sev. species of Encephalartos, an African genus of Cycadaceæ. The pith is rich in starch, and is made into meal by

the Kaffirs. E. Caffre is known as Caffre, or Kaffir, Bread.
Break-joint (in architecture), to dispose the stones or bricks of a building so that no two joints occur immediately over each other. Also as noun) the joint of a brick coming opposite the centre of bricks above and below. The term for such overlapping is a 'bond.' This greatly strengthens the structure.
Breakspeare, Nicholas, sec ADRIAN

IV., Pope.
Breakwater. Bs. differ from plers in their not being necessarily adapted for commercial uses. They do not for commerical uses. therefore require to have roadways for the accommodation of traffic or parapets for keeping water or spray from passing over them. A B. there-fore may be defined as a barrier erected for breaking the force of water without a harbour and producing a calm within. Natural Bs. also exist, such as the Isle of Wight, which occupies such a position as to protect Portsmouth and Southampton. Piers may also be constructed so as to serve also as Bs., but the term B. only strictly applies to a structure built solely for protection, and not for traffic. Bs. are of three classes, according to their structure: (1) Those of the first class consist of vertical Brosimum structures of built masonry for arrest-

of this class. (3) Composite Bs. involving both the above principles, i.e.

of this class.

Plymouth Harbour is one of the finest Bs. in existence. The designs are by Bennie, and it was begun in 1812 at an estimated cost of £900,000. The stone was obtained from a neighbouring quarry, transported by rail and shipped in vessels fitted with trapdoors and deposited through these in the shape of a huge mound. The mound was to be 10 ft. above low water, with a width of 30 ft. on top. The movement of the waves and constant storms, however, severely changed its shape. In 1824 about changed its shape. In 1824 about 800 yds, of the finished work was overthrown by a severe storm. After this it was raised 10 ft. higher, and the width extended to 45 ft., having a scaward slope of five to one. It was finished in 1841 at a cost of £1,500,000. The B. is a mile long, having a central portion 1000 yds. long. Two wings of 350 yds. long extend at the ends of this at a slight angle. The water space protected is about 1120 ac. The B. requires constant repair, the annual estimates being over £2500. by Mr.

Holyhead B., designed Randell, was erected for the purpose of converting Holyhead into a harbour of refuge. The stone was obtained from Holyhead Mts., and was run out upon a timber staging and dropped into the sea. The rubble reached up to the level of high water, and has assumed a seaward slope of one in twelve. The inner slope is one and a quarter to one. The B. shelters an outer roadstead of 400 ac., and an inner roadstead of 270 ac. The stone was obtained by blasting, one explosion of 21,000 lbs. of gunpowder displacing 130,000 tons of stone. The placing 130,000 tons of stone. The estimated cost was £1,500,000. On the death of Randell the work was continued by Sir John Hawkshaw, and was finished in 1873. On it stands a lighthouse rising to the height of 70 ft. above high water.

The Portland B. acts as a B. to the which to work. stretch of water between the coast of Dorset and the peninsula of Port-

tures of rubble stones dropped into exit of ships. The work was finished or timber in 1872, and consists of a rubble stone face each bank surmounted by vertical walls

a example from the low water level.

The B. off Cherbourg is perhaps the largest and most costly ever erected.
M. de Cessart proposed to the French they are partly vertical and partly M. de Cessart proposed to the French sloping. Cherbourg B. is an example government the erection of a B. off government the erection of a B. off Cherbourg. As a beginning numbers of hollow cones formed of timber framing were to be sunk as close to one another as possible, and then filled with stones. These cones numbering about 64 and measuring 70 ft. high with a base diameter of 150 ft., were to form a nucleus to the stone B., and to prevent displacement of the stones by the action of the waves. This plan was abandoned in 1785 owing to the damage done to them during stormy weather, and the stone B. was continued without the aid of the cones. It was finished in 1853 at a cost of £2,500,000. Fortifications have been added since then upon the upper works. It is nearly 2½ m. long, 300 ft. wide at the base, and 31 ft. wide at the top. The water space included within and protected by the B. is about 2000 ac.

Dover B. has been chiefly useful as

the French mail packet station. was built up by means of solid ashlar brought from the bottom by means of the diving bell, with the interior formed of blocks of concrete. area enclosed is about 685 ac. It cost about £3,500,000, and has been

extended twice.

Alderney B. was designed for the government by James Walker in 1847. It is 4500 ft. long, but the outer portion has been abandoned owing to the difficulty of maintaining it. It was completed in 1864, and the total cost of the structure has been over £1,500.000.

The introduction of concrete made Portland cement has in recent years modified the construction of Bs. Cement is mixed with sand, gravel, and broken stone in various proportions. Sometimes the concrete is made up into large blocks and deposited under in low water. At other times it is lowered down in large bags, which are opened under water and thus form a mound or basis upon

Bream is the name applied to many species of fishes, the fresh-water Bs. land. It was begun in 1849. It is of and sea Bs. being absolutely distinct. land. It was begun in 1849. It is of and sea Bs. being absolutely distinct the same engineering works as the The former belong to the family Holyhead B., only they were conducted more easily than those of any other B. There is an abundance of abdomen and elongated anal fin. stone in the neighbourhood, easily Among these are Abramis blicca, quarried, and the steep slopes afford quarried, and the steep slopes afford dielity of transport. The B. stretches crysoleucas, American shiner. The due N. for more than 2 m., with one sea-Bs. constitute the family Sparide, are two considered for the entrence and which are north-like carnivorous or two openings for the entrance and which are perch-like, carnivorous

fishes. and. unlike Abramis, mostly edible. Representative species each pair of boards as in a box until are Cantharus lineatus, black sea-B. it arrives at the lowest point, where or old wife, Sargus ovis, sheep's head, and Pagellus centrodontus, common sea-bream or chad.



BREAM

Breast, the external part of the thorax lying between the neck and the abdomen, also applied particularly to the mamma of women. The Bs. in women are accessory organs connected with the reproductive system. Each extends from about the level of the second or third to that of the sixth rib, and consists of a hemispherical projection at the summit of which is a nipple which is pierced by numerous small openings. These openings represent the ends of the lactiferous ducts, which carry fluid from the alveoli in the interior of the B. (see MAMMARY GLANDS). The size of the Bs. varies much in different races, and also in the same individual races, that also in the same marriaga at different stages of life. In the young child they are small, and their growth is slow until the approach of puberty, when they increase rapidly in size. At the first pregnancy there is a still further increase in size, and the arcola, or circular area of skin about the nipple, becomes brownish in The Bs. are at their largest when the milk is most abundant, and usually become larger at each preg-nancy. In men the Bs. are reprenancy. In men the Bs. are represented by a rudimentary structure.

Breastplate, a plate of iron or steel fastened to the chest of its wearer. It formed an important part of the war equipment of anot. times. A similar plate was fastened at the rear to plate was fastened at the rear co-protect, in a similar way, the back. Together, the two plates form a cuirass, which are worn to-day by European cuirassiers and by life guards and horse guards of England.

Breast-wheel, a water-wheel, the axis of which is almost on a level with the surface of the water driving it. The wheel is fitted with a number of flat boards instead of buckets as in an overshot wheel. The water approaches the wheel through a sluice The water apor shuttle, adjusted to regulate the quantity admitted to act on the and from 1851 to 1855 he sat in Conwheel; it then falls upon the nearest president under Buchanan. He weight. The float-boards revolve in a strongly favoured the pro-slavery channel which is so accurately fitted party, and in 1860 he was nominated

are that the water is retained between it flows away in the escape-stream.

Breastwork, in fortification, is an erection quickly built of earth, of adequate height to afford protection to the men standing below on the ground, and to enable them to fire over it. The inner surface of the B. is faced with such things as wood, sods, and other hard substances, to enable it to withstand the strain which is caused by the steep angle at which it is built. It is so built to give more cover to the re-sisters, by enabling them to get clo-up to it. The ditch which is formed, by the taking of the earth to build the B. is another advantage, as it causes some inconvenience to the attacking party.

Breath and Breathing, see RESPIRA-

TION.

Breathing Pores, the orifices at the end of breathing tubes in insects. Respiration is carried on by means of the air-tubes which penetrate into all parts of the body from spiracles or pores on the surface of each segment. The spiracles are closed by valves actuated by special muscles. When the valves are closed the air is driven by the contraction of the body into the finer branches of the air-tubes.

Breccia is a rock composed of angular fragments of a pre-existing rock, or of sev. pre-existing rocks, united by a cement of mixed matter. The term is an Italian one, and the rock differs from conglomerate in the angularity of the fragments.

Brecey, a small Fr. tn. in the dept. of Manche, situated 27 m. to the S.W.

of Saint-Lo.

Brechin, a tn. in Forlarshire. It is situated on the S. Esk, in a position 8; m. W. of Montrose. Its chief manufs. are linen and paper, while breweries, distilleries, and bleaching works also carry on an extensive trade. The tn. was burned in 1645 by Montrose, and was the scene in 1303 of a famous siege by Edward I. Dr. Thomas Guthrie was born there. Pop. (1901) 8941.

Breckinridge, John Cabell (1821-75), American soldier and vice-president. was born near Lexington, Kentucky. Sev. members of the family had previously risen to prominent positions in the States. B. adopted the pro-fession of law and practised in Frankfort, Kentucky, and later at Lexing-ton. In 1849 he became a democratic member of the Kentucky legislature, for the presidency in those interests. Lincoln, however, was elected president. He joined the Confederate forces, and was created major-general in 1862. He fought with distinction at Stone R., Newmarket, and in cooperation with Lee at Cold Harbour. Towards the end of the struggle he was appointed secretary of war to the Confederates. At the close of the war he took refuge in Europe, but in 1868 he resumed his practice of law in Kentucky.

Brecknock, or Brecon, the cap. of Brecknockshire, and a municipal bor. It is situated almost in the centre of the co., at the junction of the Honddu with the Usk, 40 m. from Swansea and 183 m. from London. The surrounding scenery is very beautiful and mountainous. Its manufs. are coarse woollen goods, hosiery, and flannel, etc. There is a fine old church of the Early Eng. style, and the ruins of a castle built in the 10th century. Mrs. Siddons was born in the neigh-

bourhood. Pop. 5950.

Brecknockshire, a co. of S. Wales, situated between Radnor on the N., Radnor and Hereford on the Cardigan and Caermarthen on the W., and Monmouth and Glamorgan on which is the state of the state the Brecknock Beacons reach nearly 3000 ft. The slope of the co. is towards the E., and the chief rivers are the Usk and the Wye, with their many feeders. The prin. geological formation is that of old red sand-stone, and in the S. there is a belt of carboniferous limestone and stone grit. To the N. of the co. there are silurian rocks. The greater part of the dist. is uncultivated; about a quarter is estimated to be tilled. The valleys, which contain rich soil, yield good crops of wheat, barley, rye, oats, peas, potatoes, and turnips; the latter and oats are specially grown in large quantities. The uplands are pastures for great numbers of sheep, ponies, and cattle, and these with pigs, wool, and dairy produce form the chief trade of the co. The manufs. are flannel and coarse woollen stuffs, ctc., and leather. Mining is important, coal and iron being found in great quantities. Also limestone and freclay are worked. There are large iron works. A branch of the L. and N.W., Railway crosses the co. in the N.W., and the Brecon and Merthyr and the Midland railways cross it in the centre and S. The Brecon Canal connects with the Bristol Channel. The climate of the co. is moist and healthy, and on the whole mild.

Breda, a tn. of Holland, situated at the confluence of the Mark and Aa (two canalised and navigable rivs.), in the prov. of Brabant. It was once strongly fortified, with the power to flood immediately the town, but now to a great extent, the fortifications have been removed, though it is still a citadel. There is a very fine quay and an arsenal; also there is a prison, with isolated cells numbering 208. The manufs. are carpets, woollen and linen goods, leather, musical instruments, hats, soap, rope, etc. There are dye-works and breweries. B. has had an interesting history, and has undergone many sieges. It was taken by Prince Maurice of Orange in 1590, by the Spaniards in 1625, and by the Fr. in 1794-5. It was the subject of the 'Compromise of B.' in 1566, the 'Declaration of B.' in 1660, and the 'Treaty of B.' in 1667. This last was between England, Holland, France, and Denmark. Pop. 27,827.

and Denmark. Pop. 27,827.

Bredahl, Christian Houd (17841860), a Danish poet. His chief work,
Dramatic Scenes taken from an old
Manuscript, appeared in six parts
from 1819 to 1833, and contain much
fine and powerful writing. He also
published several successful dramas.

Bredasdorp, a dist. of Cape Colony, S. Africa. The climate is fairly dry, the average rainfall being less than 20 in. The cap. of the dist. is B., which is situated 35 m. S.W. from Swellendam, and has a pop. of 1500. Bredero, Gerbrand Adriaenssen

(1585-1618), comic dramatist, was a shoemaker's son. In 1611 he dramatised a romance, entitled Roderick and Alphonsus. His original genius, however, first showed itself in his Farce of the Cow, 1612, and from that time there flowed from his pen a stream of farces, comedies, etc. In his Jerotimo, the Spanish Brabanter, he mocked at grandiloquence of the exiles from the S. A contemporary of Ben Jonson, he resembles him in his coarse, ready wit, but unlike him, he knew no Lat., and had no humanist synpathics. Holland knows no greater writer of comedies.

Brederode, Henry, Count of (1531-68), was born at Brussels. He was a staunch upholder of the reformed faith, and strenuously opposed the inroads of the Spanish Inquisition in the Netherlands. He drew up the document called 'The Compromise,' and his supporters were nick-named les Gueux (the Beggars). The failure of a revolt organised by him compelled him to fiee to Germany, where he died.

Bredow, a suburb of Stettin, on the Oder, in the prov. of Pomerania, Prussia. It has sugar, chemical, and cement works, but it is noted for the

Vulcan ironworks, where many liners, represent the first attempt of man to including the George Washington, 1908, which has a tonnage of 27,000, have been built. Pop. over 14,000.

Bredow, Gottfried Gabriel (1773-1814), a celebrated German historian who was born at Berlin. He occupied the chair in history at the universities of Helmstadt, Frankfurt, and Breslau. He published many books during his lifetime, the most important of which are Handbuch der allen Geschichte, Geographie und Chronologie, 1799; Chronik des 19 Jahrhunderts, 1801; Grundriss einer Geschichte der merkwürdigsten Welthändel von, 1796-1810,

1810. He died at Breslau in Sept. Bree, Matthias Ignatius van (1773-1839), a Flemish artist, born at Ant-1839, a Flemish artist, born at Anti-werp. He studied at Paris after hav-ing gained for his 'Death of Cato' the second 'prix de Rome.' In 1804 he became director of the Academy of Fine Arts at Antwerp. Among his Fine Arts at Antwerp. Among his notable works are 'The Patriotism of the Burgomaster Van der Wergt,' in the tn. hall at Leyden, and 'The Death of Rubens,'in the museum at Antwerp. He encouraged and instructed the younger painters, among whom are numbered Wappers and De Keyser.

Breech, Breechloader, see GUNS. Breeches Bible is another name for the Geneva Bible. It was brought out in 1557 by the English exiles, who had fied from the Marian persecutions to Geneva. Three years later they produced a complete edition of the Bible. It is so called owing to the statement in third chapter of Genesis, that Adam and Eve took fig leaves and made themselves breeches. A sect of Puritan women took upon themselves (following this literally, as was their custom) to claim the right to wear male attire.

Breeding, the conscious selection

for purposes of propagation of certain retaining certain desired charactercultivating animal he bo

extent a factor in the the plants he induced to

it was seen that certain plants were good to eat, it was obviously desirable that primitive man should make his home for the time being in a locality food of those kinds where were The tribal instinct itself plentiful. implies a certain degree of localisation, if only temporary; the destruction of noxious or useless plants, and the preservation of those expected to bring forth food, would probably

influence natural growth in his own The influence of recurring favour. seasons and the periodic nature of the changes in plant form would of necessity be quickly realised even by a nomadic people, and as settlements became established, areas devoted to the growth of desirable plants would be preserved, either in the places where the wild plantation originally stood, or in places selected as suitable for defence against enemies. The success or failure of certain growths in the selected locality would determine the species looked upon as being worth cultivating. The desirability of avoiding over-crowding in the plantation would lead to the elimination of individuals less fitted for the purpose view. Thus species would be evolved more useful to man than the corresponding wild species, because man had introduced a new factor in the struggle for existence; he had afforded protection to certain ten-dencies, repressed others, and as long as the conditions for reproduction were observed, the result would gradually be a movement in the direction of developing more nounced characteristics of the kind favoured by man. The selection and B. of animals at first proceeded upon The purposes for the same lines. which animals were domesti would be of course utilitarian. domesticated dog appears to have come first as a hunting companion; oxen, horses, etc., were appreciated as beasts of burden; oxen, sheep, deer, goats, etc., as reserves of food and sources of useful material as hides, bones, horns, etc., while the use of products such as milk and birds' eggs was probably secondary to the cultivation of animals for other uses. For each of these uses particular qualities are necessary, included among which would be a certain degree of amenability to treatment by man. As in the case of plants, the process of natural selection would be modified by the individuals in species of animals or elimination of individuals not posplants, with a view to developing or sessing the required qualities in a satisfactory degree and by protection The moment man became a afforded to the more suitable inalthough perhaps such inwould be unfit in 'or existence under natural conditions. Later on, the possibility of intensifying certain qualities, and combining different qualities by sult-

able mating, would be realised, and a

second important stage in the history

of B. would be entered upon. The artificial fertilisation of the repro-

ductive agents in plants appears to be

a comparatively recent innovation. but the accidental or purposeful

proximity of cultivated species would

Among savages, therefore, we find horses bred for speed and endurance, dogs of disciplined ferocity, cows and goats with large udders, poultry of laying proclivities, and a general tendency to fat and fleshiness amongst many kinds of ficsiness amongst many kinds of stock. With respect to plants, we find grains, roots, and tubers of ex-ceptional size and palatability, and large and succulent fruits. Breeders modern factors than .

but it may b time, the practice of breeders is based on just such empirical observations as exemplified above. The factors taken into account by the modern breeder are the extent to which certain characteristics are transmitted to descendants, the effect of environ-ment, as of soils on plants or pastures on stock, and the limits to which special characteristics can be de-veloped by in-breeding. Every veloped by in-breeding. Every breeder has his own body of knowledge gained by his own experience. In the case of horticulture, it may be said that effects have been produced by the practice of principles obtained scientifically, but in the case of animals the special knowledge which each expert has of particular varieties and of their reactions with other varieties is the result of experience only. What general principles have been enunciated are probably mistaken, as that the offspring of a par-ticular union may bear some of the characteristics of a male with whom the mother had previously mated. The results appearing to bear out that conclusion are probably due to other causes, as physiological facts are opposed to the idea of the persistence of the effects of a previous union. When the laws of heredity and variation can be formulated with some approach to definiteness and certainty, it will be possible to establish a science of breeding, with results difficult to appreciate at present. For not only will the process of variation be speeded up to much fewer generations in animals and plants, but it is foreshadowed that the human race itself may be brought under a scientific B. system. The tre-mendous possibilities involved would therefore seem to indicate the necessity for approaching the subject with more than ordinary circumspection. To take an impartial view, one may he work of

ave , the knowledge of heredity and kindred sub-jects will have to be much extended jects will have to be much before any general application of such before any general application. The facts doctrines can be tolerated. The facts

lead to the intensification of certain of heredity as they are known at characters. Among savages, there-present are generally appreciated by breeders, but there are many phe-nomena which may at any time emerge from the sphere of speculation into comparative certainty. The main fact of heredity is of course that organisms tend to reproduce structures characteristic of the parent species. To go back to the beginning of the individual organism, we start with the conception of the germplasm, fertilised by the male element and gradually developing by the assimilation of protoplasm and by cell-division into the embryo. Characteristic structures develop before and after the individual has entered upon an independent existence, and may continue to develop up to the end of life. In all these developments a certain amount of similarity to the parent may be noted. Thus the child may not only resemble its parents in feature, colouring, height, etc., but also in details of mannerisms, voice, etc., even as far as those which may develop in extreme old age. Without deciding as to the degree to which heredity or environment is responsible for such similarities, there is sufficient evidence to suggest that in some way the germ-plasm contains all the possibilities of the after-development, including the latent qualities of succeeding generations. There is some difference of opinion as to the de-velopment of the germ-plasm. The theory associated with the name of Weismann suggests that though the germ-plasm contains all the possi-bilities of the new organism, in the subsequent cell-division some of the germ-plasm is retained for reproductive purposes and persists unchanged, whilst the other cells are differentiated according to the different functions they may be called upon to perform. Hertwig, on the other hand, was opposed to such idea of differentiation, submitting that the germ-plasm developed by division and subdivision, and retained its special characterístics all under circumstances of vital progress. This theory has the particular advantage that it at any rate explains the reproduction of lost parts in animals and plants. a difficulty which is not satisfactorily dealt with by the followers of Weismann. In connection with the idea of t' sm must of Menbe . del tend to the opinion that the persistence of special characters as contributed by either parent is capable of a certain degree of mathematical handling. In

> a simple case it is shown that when opposing characters are mingled, the

> offspring may breed true to either

where both characters are com- here be scientifically investigated. It mingled. In experiments with sweet peas, a short variety was mated with a tall, producing tall seedlings. The second generation produced in-dividuals half of which were tall and bred true, a quarter were dwarf and bred true, while the remainder were tall, breeding in the proportion of three tall to one dwarf. The general conclusion appears to show that either character may lie latent, as it were, for some generations, the probability of its recurrence, in the absence of any further sexual association with the character, diminishing with each successive generation. In all these theories of heredity it will be seen that the possibility of the inheritance of acquired characters is not admitted. Now every breeder recognises the effect of climate, pasture, etc., upon his stock, and he would probably maintain that the steady maintenance of certain conditions during the life of the individual determines the breed of subsequent generations. This is true in a sense, but it is still unnecessary to postulate the transmission of acquired characters. The breeder has selected, let us say, a species which has been found suitable for certain conditions; that is to say, one which can live and work or perform its other functions and also retain its ability to procreate. How-ever great its efficiency in other ever great its efficiency in other respects, it cannot be bred if it is incapable of reproducing itself; unless we can speak of the B. of mules, etc. Amongst the individuals of the next generation there will be found some a noted naturalist, born at Renthenwhich are less suitable for the sai conditions, some which are more su able, and some of the same degree suitability as the parent stock. the tendency of the breeder will be select, ceteris paribus, the individuals most suited to his particular conditions, the stock will gradually improve in that direction. It is necessary to say 'other things being equal, because there is a limit beyond which speci be further

ticularly ir Hence the necessity for cross-breed-Acquired characters, therefore, are not inherited so much as the capacity for the offspring to acquire the same characters as the parents

deterioratio

under the same circumstances.

Breezes, Land and Sen, are best studied in the tropics. For in hot climates they blow quite regularly, and extend a considerable distance. except when they are overpowered by more violent winds, as, for example, the monsoons. In England they are Royal Irish Academy, the British

character, or may lead to generations; irregular, and therefore they cannot is a matter of common observation that about noon a B. begins to blow landwards from the sea, and con-tinues in that direction till sunset, whereas, near midnight, this B. is superceded by "

the contrary the shore sear the usually The heat of over the earth to expand, and therefore to rise. This upper stratum passes away towards the sea, and thus increases the barometric pressure. This causes a current of air to flow continually towards the coast, where

the pressure is lower. When the land B. sets in at night, it is to be explained by similar reasoning. This time the atmosphere over the land is cooled, and the heated strata above contract and therefore fall. The cooling takes place much more rapidly over the land than over the sea. Therefore the colder heavier air rushes out to sea to relieve the higher pressure.

Bregenz, a tn. in Austria, situated on the site of an old Rom. camp, at the eastern end of Lake Constance. It is the cap. of Vorarlberg, and is about 6 m. S.E. from Lindau by rail. The most important manuf. is that of wooden fittings for buildings, frameworks, etc. There are coal mines in the neighbourhood, and blastfurnaces, also saltpetre works. B. trades in wine, fruit, corn, dairy produce, and cattle. Pop. 7750.

Brehm, Alfred Edmund (1829-84).

search work in botany and zoology in Africa, and travelled in Spain, Norway, Lapland, and other parts of Europe, where the fauna and flora had not yet been adequately classified.

in 1863. In Aquarium at His work entitled Berlin. triertes Thierleben will always preserve

his fame as a naturalist. Brehon Laws, the Eng. name for the laws that prevailed in Ireland till the middle of the 17th century. The correct name for the laws is the Feineachas, meaning the laws of the Feine or farmers. The appellation B. is derived from the Gaelie word brethem, meaning a trained judge, who administered justice to the tribe.

Breisach Museum, and the Bodleian. These

fragments are a store-house of archeological and philological treasures. The transcripts belong mainly to the 14th transcripts belong manny to the century, but the laws themselves go back as far as to the 3rd century (the back as far as to the 3rd century (the back as far as to the 3rd century (the back as far as to the 3rd century (the back as far as to the 3rd century (the back as far as to the 3rd century (the back as far as to the 3rd century (the back as far reign of Cormac Macs Art). language of the B. L. is the Bearla Feini-the most archaic form of the Gaelic language. The vocabulary is often hard to interpret owing to the lack of contemporary documents. The B. expounded the law at the public assembles of the tribes. If there were sev. Bs. in the dist. the suitor chose his own B. An appeal to the assembly was permitted against the decision of the B., and if he were found to have given a false decision he was liable to a severe penalty. The B. had to study the laws for a course lasting about twenty years before he expounded them. The society among which the B. L. prevailed was based on the clan. These clans were under provincial kings, but these provincial kings swore allegiance and paid tribute to the Ard-Rig or supreme king of Ireland. The land occupied by a clan was the collective property of the clan, but part of the land was reserved. for the king, nobles, and other public servants. The remainder of the land was allotted on the tithe-system to the people. The laws recognised two classes of crimes—crimes against the state and crimes against the individual. Crimes of the first class, e.g., treason, were punished with the severest penaltics, i.e., banishment and loss of property. The offenders of the second class had to give compensation in proportion to the crime. The B. L. were the guardians of the

Breisach, a town belonging to the grand duchy of Baden. It is situated on a hill, to the W. of the Rhine, about 13 m. W. of Freiburg. It was once an important Austrian fortress. The Fr. had possession of it sev. times, and during the Franco-German War

entire social life of ancient Ireland.

of 1870 it was besieged.

Breisgau was a dist. in Germany between the Rhine and the Black Forest. It now forms a part of Baden. The land is fertile, and its productions are fruit, wine, corn, and flax. Timber

is largely grown.

Breislak, Scipion (1748-1826), geologist, was born at Rome. He was a professor of mathematics at Ragusa and at Rome. He was closely connected in his geological work with Chaptal, Cuvier, and Fourcroy, and was ap-pointed by Napoleon as inspector of the saltpetre works in Italy. His His chief works are: Descrizione geologica della provincia di Milano, 1822; Topografia fisica della Campania, 1 Introduzione alla Geologia, 1811. 1798;

Breitenfeld is a small place in Saxony, about 5 m. N. from Leipzig. It is noted as being the scene of one or two battles. Two battles were fought and gained by the Swedes in 1631 and 1642, during the Thirty Years' War. It was also the scene of a part of the Battle of Leipzig in 1813.

Breitinger, Johann Jakob (1701-76), Swiss scholar and writer, b. at Zurich, and became professor of Gk. and Heb. in the university there. His critical works had a great reforming influence upon Ger. literature. In this effort he was associated with Bodmer, and took part in the controversy with Gottsched. His writings include Kritische Dichtkunst, a critique on the art of poetry, 1740, and an edition of the Septuagint, 4 vols., 1731-2.

Breitkopf, Bernhard Christopher (1695-1777), the founder, in 1719, of the famous Ger. music-publishing firm, Breitkopf and Härtel. The firm is best known by its great editions of the complete works of the chief composers, and it has identified itself with musical progress on the Continent by its encouragement of new writers.

Breitkopf, Johann Gottlieb Emmanuel (1719-94), Ger. typographer, born in Leipzig, and educated at the university there. He entered his father's printing and publishing business, and introduced many valuable typographical improvements, obtaining clearer and more elegant letters than had hitherto been known. He

wrote several books on he art, and began a History of the Art of Printing. Bremen: 1. The city, cap. of the Free State of B. The city is divided by the riv. into two parts—the old tn. on the r.b. and the new tn. on the left. The old tn. is one of the most interesting relics of mediæval days. The tn. has narrow winding streets and quaint irregular houses. The anct. tn. hall is situated in the market square, and before it stands a statue of Roland. similar to those of sev. other old German tns. The statue is meant to represent 'Justice.' The right hand wields a sword, and at the feet lie a head and a hand symbolical of the power of life and death that rested with the magistrates. The wine-cellar of the tn. hall is one of the most interesting cellars in Europe, and has been immortalised by Wilhelm Hauff. The Cathedral of St. Peter. which replaced the wooden erection of Charlemagne is one of the most famous cathedrals of antiquity. The ram-parts of the town have been con-verted into elaborate promenades. The modern commercial buildings are im-The ramposing. The chief industries of the tn. are maritime. It carries on an important trade with the United States in tobacco, cotton, and petroleum, and is in touch with all the great forms. Interesting from a social markets of the world. B, first rose to be a city of importance when Charlemagne made it the seat of a bishop. The standard of her earlier works It soon became a city of first maritime It soon became a city of first maritime importance in the days of Hansaatic prosperity. In 1810 it passed into the hands of the Fr., but regained its independence in 1813. In 1815 it was admitted into the Germanic confederation. It joined the N. Ger. Confederation in 1867, and finally became part of the new Ger. Empire. Pop. (1905) 214,953. 2. A free state of the Ger. Empire, in area about 100 sq. m. The chief occupation of the inhab. is agriculture. The language spoken is chiefly Low Ger. B. has one voice in the Bundesrat, and elects one member for the Reichstag.

Bremenhaven is an out-port of Bremen, Germany, situated on the r. b. of the R. Weser, at the mouth of the Geest, about 10 m. from the sea. It is a thriving and increasing tn., with splendid port accommodation, which consists of four large docks, and six dry docks. Its exports are corn, iron and steel, glass, woollen goods, linen, etc., and its imports are colonial produce, timber, machinery,

etc. Pop. 21,500. Bremer, Fredrika (1801-65), Swedish novelist, was born at Tuorla near Abo in Finland. She was the daughter of a wealthy iron merchant, who removed to Arsta about twenty miles from Stockholm when Fredrika was four years old. Her studies seriously affected her constitution, and at the age of twenty she travelled and at the age of twenty she travelled with her family, for the sake of her health, through Germany, Switzerland, France, and Holland. About this time she began to study the poetry of Schiller, and through its influence became possessed by the idea of a literary career. In 1828 her Sketches of Everyday Life were pub, but her second vol. The H. Family was the work that first brought her fame. Her father died in 1830, and was the work that first brought her fame. Her father died in 1830, and from that time she travelled and wrote as she pleased. She closely studied family life in the old and new worlds, and her books entitled Homes of the New World (1853) and Life in the Old World (1852) are the fruit of her researches. Her prin fruit of her researches. Her prin. works were trans. into Eng. by Mary Howitt. On her return to Sweden Miss B. becomes transmissioners. Miss B. became absorbed in questions of social reform. She was chiefly concipation of women. She formed his mercy, but he wasted time, and societies of ladies in Stockholm for the imajority of the inhabitants of Rome were able to seek safety in tresses of the poor, and bringing flight. The city, defended only by assistance to orphans. Her later the aged senators, was considered. cerned with the problem of the eman-

when judged purely for their literary merits. The latest years of her life were spent at Arsta. Her best and most representative work is The Neighbours (1837).

Bremer Beiträge, popular shortened name of the Ger. weekly literary journal Neue Beilräge zum Verg-nügen des Verstandes und Wilzes, pub. in Bremen and Leipzig, 1745-8, by Gärtner, Schlegel, Cramer, Gellert, Rabener, and others. First three cantos of Klopstock's Messias appeared in it, 1748. See Muncker's selection in Kürschner's Deutscher Nationalliteratur.

Bremersdorp, a town in S. Africa, notable only for the fact that it is the seat of the resident commissioner of

Swaziland.

Brendan, St., of Clonfert, an Irish hero of legend, is reputed to have been born at Tralee in Kerry in the year 484 A.D. The historical personage of this name seems to have been an abbot this name seems to have been an abbot of the Benedictine order; but according to medieval legend this saint sailed across the Atlantic in search of a 'Promised Land, and was the hero of countless adventures. Geographes long accepted St. B.'s Is. as a geographical reality, and in the maps previous to Columbus' voyage It is located near the island of Antilia. Columbus himself in his journal says that he had heard proports in regard that he had heard reports in regard to the situation of the is. The Island was variously located by geographers until in 1759 the legend was exploded and the reported discoveries were explained as mirage. There are many versions of this voyage, perhaps the most popular legend of medieval times. The oldest version is the Narigatio Brendani of the 11th century.

Brenner Pass is the lowest pass over the main Alps. It is in the Tyrol, and is in the main line from Germany to Italy. Its height is about 4500 ft., and is 12 m. in length. It is open all the year round, and has been in use

from ancient times.

pre i Ire

Gaulish tribes in an attack upon Rome. In 391 B.c. he defeated and practically annihilated a large Roman army. Had he then marched directly on Rome the city would have been at assistance to orphans. Her later the aged senators, was easily cap-works are concerned with the pro-tured, but the Capitol sustained a six mulgation of her views on such re-months' siege, being once saved only

by the geese of the Capitol. The Gauls at last consented to a ransom of 1000 (1815). His short novels were expounds of gold. Whilst the gold was being weighed, the Romans complained of some unfairness, and B. Inmediately threw his sword into the opposite scale, exclaiming Va Victis (woe to the vanquished). Camillus is alleged to have appeared at this opportune time to avenge the many.

Brenton Brenton Brenton Brenton Brenton Pragas at last consented at last short novels were expounded at Raspere und den Schönen braven Kaspere und den Schönen the finest things he ever wrote. His Romanzen vom Rosenskranz was pub. after his death and contains some of his best work.

Brenton Brenton Brenton Brenton Brenton Pragas Pragas were expounded for some of the finest things he ever wrote. His Romanzen vom Rosenskranz was pub. after his death and contains some of his best work.

Brenton Brenton Brenton Pragas Prag insults to the Romans, but the story is probably untrue. The Gauls seem to have returned in safety to their homes, leaving Rome, plundered, sacked, and burnt, to recover her former strength, a task of some diffi-culty. The second B. is supposed to have led two expeditions of the Gauls into Macedonia and Thrace. We cannot be certain that he took part in the first, but he was certainly the leader in the second (279). He met with opposition at Thermopyle, but was able to defeat the Greeks by the employment of much the same tactics as had been used by the Persians some two centuries before. Thence the Gauls advanced on Delphi, but they were beaten back from that city by the determined resistance of the citizens. Rather than return defeated, and having already been wounded, Brennus killed himself. Brenta, a riv. in the N.E. of Italy. It rises in Lake Caldonazzo, in S.

Tyrol. Its length is about 116 m., and its direction is first S., then eastward. It finally empties itself into the Adriatic Sea, at Brondolo. The old bed of the riv. was made into a canal,

and is used more than the Brenta. Brentano, Clemens (1778-1842), a Ger. poet and romance writer, was born at Ehrenbreitstein. He was the brother Bettina von Arnim, of Goethe's friend. He was of a restunsettled temperament, and subject at times to melancholia. He was a student for some time at Jena, but subsequently went to Heidelberg and afterwards to Berlin. In the year 1818 he became a zealous Catholic and renounced his former unsettled habits. For six years (1818-24) he lived in seclusion in the monastery of Dülmen, where the 'nun of Dülmen' revealed herself to him. After B. left the monastery, he lived at Regensburg, Frankfort, and Munich, Towards the end of his life his melancholia developed to a critical

Brentano, Ludwig Joseph (corrupted into Lujo) (b. 1844), a Ger. political economist, born at Aschafenburg, in Bavaria. He belongs to the same family as the romanticist of the same name. He studied at Dublin University and also at several Ger. universities. In 1868 he travelled in England to study the conditions of labour and examine Eng. trade unionism. The fruit of these trade unionism. The fruit of these researches was his prin. work, Die Arbeiter gilden der Gegenwart, 1872. The work traces the evolution of the trade union from the guilds of the middle ages. He became a professor of political economy at Breslau in 1872, at Strassburg in 1882, at Vienna in 1888, at Leipzig in 1889, and at Munich in 1891. His other works include treatiess on wages, on insurance for working classes, and on socialism.

on suchaism.

Brentford, the co. tn. of Middlesex,
England, about 8 m. W. from London
and almost opposite Kew. The R. and almost opposite Kew. Brent divides the tn. and the Grand Junction Canal joins the riv., giving the tn. considerable water communithe th. considerable water communication. B. has docks and waterworks, which supply W. London, breweries, distilleries, soap factories, and saw and planing mills. There are large and profitable market gardens, and a weekly market. Pop. 15,850.

Brent Goose, or Bernicla brenta, belongs to the family Anatidæ, and is closely related to the Barnacle Goose (a.r.) In colourit is black white and

(q.v.). In colour it is black, white, and grey, and it commonly frequents British coasts. It is both carnivorous and herbivorous, and is an edible species of goose.

Brenthidæ is a family of coleopterous insects which includes many remarkable tropical beetles; the chief genus is *Brentus*. The most common colouring of the species is black, or brown, with red spots and markings. They live on plants, and the females bore into wood with their sharp mandibles.

Brenton, Sir Jahleel (1770-1844), a melancholia developed to a critical pitch. He died at Aschaffenburg British admiral, born in Rhode Is. B.'s poems are of a somewhat explose the stravagant romantic type. Symbolism and occult expression are rection of the American colonies. He carried to excess. He pub. his Saliren was lieutenant in the British navy at beginning of the war, and emigrated Godiei (a romance) in 1802. His to England with his family. He went dramatic works show considerable to sea (1781) with his father, and to the dramatic prover; the heat are Victoria (Chelea 'meritime school' at the dramatic power; the best are Victoria Chelsea 'maritime school' on the

return of peace. For a time B. served in the Swedish navy against the Russians. He was at Cape St. Vincent, in the Barfleur, 1797. In 1801, served as freescoes. There are a botanic garden, flag-captain to Saumarez in actions at Algeciras and Gibraltar. B. was wrecked off Cherbourg, 1803, and joined by his wife in prison. Exchanged (1806) for Masséna's nephew captured at Trafalgar. His most His most brilliant achievement was his defeat of the Franco-Neapolitan flotilla, 1810. He was made baronet, 1812; K.C.B., 1815. B. reached flag-rank 1830, and took part in philanthropic work. He was resident commissioner at the Cape, and lieutenant-governor of Greenwich Hospital, 1840. See Raikes's Life, 1846, re-issued 1855 by

Brentwood, a market tn. in Essex, England, situated in pleasant, wellwooded country, about 9 m. from Chelmsford. There is a large and important grammar school, which was founded by Sir Anthony Browne, and the ruins of a chapel, which had been dedicated to St. Thomas à Becket.

Pop. 4975.

Brenz, Johann (1499-1570), Lutheran reformer, was born at Weil, Würtemberg. He was a student at Heidelberg and there heard Luther speak. Henceforth he became a staunch adherent of the Reformation party. In his Syngramma Suevicum he expounded Luther's doctrine of the Eucharist. Although he was a zealous reformer, he opposed persecutions and openly expressed his disapproval of methods of persecution in his work De Hæreticis, an sint persequendi, 1554. He co-operated in the Würtemberg Confession of Faith, and his

Bressia, a prov. of N. Italy. It is bordered by Bergamo on the N.W the dept. of Deux-Sèvres, France. Has by Tyrol on the N.E., on the S. by Cremona, and on the S.E. Manua. It has an area satisfies. Mantua. It has an area estimated at 1645 sq. m. In the N. it is mountain-ous, but the rest of the prov. forms a part of the fertile plain of Lombardy, in which are grown the vine and olive, corn, flax, and hemp. There are also miles of orchards. B., the cap. of the prov., is beautifully situated on the banks of the rives. Mella and Garza, at the foot of sev. hills. It is a well and regularly built town, surrounded by walls, and possessing two cathed the terminal of the results are serious to the cap. in which are grown the vine and olive, drais. It's manufs, are important, and

museum, public library, hospital, etc., and a great number of public fountains in streets and squares. Pop.

70,614. Breslau, a Prussian city, and the cap. of Silesia. It is situated at the junction of the Oder with the Ohlan, about 150 m. S.E. from Frankfort on the Oder, and 190 m. from Berlin. The Oder divides the city into an old and a new tn., and these with their many suburbs are connected by a number of bridges. Until 1812 the tn. was well fortified, but the fortifications were then made into very fine promenades, while the moat was turned into an ornamental piece of water. B. is the centre of all the manufacturing distaof the prov. Its manufs, are silk and woollen goods, linen and cotton fabrics, lace and jewellery, earthenware, soap, starch, alum, machinery, etc. There is a great trade in coal, corn, flax and hemp, timber and metals. B. is connected by railways with every important city around. Pop. 470,904.

Bressay, an island, 6 m. long and 21 wide, belonging to the Shetlands, situated E. of Mainland. Its coast is bold and rocky, and is the home for numerous eagles. Peat moss largely covers the interior of the island. inhab, are engaged in state quarrying,

ishing, and making kelp. Pop. 685.

Bresse was an old dist. of E. France.
It was situated to the E. of the R.
Saone, and ite cap. was Bourg. It
formed a part of the kingdom of

promontory of Finistère on the N. and Kelerun on the S. The city is built on the slopes of two bills, intersecting which is the R. Penfeld; the incline is very steep, and the terraces of the tn. are exceptionally prominent. on the l. b. of the riv. is B. proper; on the right is the suburb known as Recouvrance. There is an imposing promenade called, after the constructor, the Cours d'Ajot, beautifully suburbed automa calculated. planted out and embellished with drais. Its manufa are important, and consist of raw silk, woollen goods, leather, wine, etc. The making of fire-arms and cutlery are specially famous. There are tanyards, paper canduly. The antiquity of the city, however, is rise chief source of interest. Its fine much later date. Among the more Rom. remains, the marble temple of Vespasian, the Corinthian columns, exchange, observatory, public library.

naval hospital, and some fine churches. of chastity, poverty, and obedience. The estuary of the Penfeld forms the Their money was to go to a common The estuary of the Penfeld forms the port of the town. On both banks are shipbuilding yards, docks, gunfoundries, and marine stores. The foundries, and marine stores. port of commerce is divided off by the Cours d'Ajot, and is protected by a breakwater nearly a mile in length. The manufs. of the city include candles, leather, chemicals, paper. The chief exports are wheat and fruit. The roadstead is about 6 m. in length. The tn. of B. was an object of dispute between the Fr. and Eng. In 1342 it passed into the hands of the Eng., and was held by them till 1397. It was again taken by the English, but finally fell to the French through the marriage of Louis XII. to Anne of Brittany II. The Bighelion who Brittany. It was Richelieu who realised its possibilities as a fortress, and commenced the fortifications in 1631.

Brest Litovsk, a Russian tn. in the gov. of Grodno. It is situated at the confluence of the R. Bug and the Mukhovetz. It was once the home of the Polish kings, and now is an Armenian bishopric. It contains a Armenian bishopric. Catholic church, three Greek churches, and a synagogue for the Jews. There are military stores and magazines. Its manufs. are leather, cloth, soap, etc., and the chief articles of trade are wood, birch tar, flax and hemp, grains, etc. Pop. 46,825.

Bretagne, see BRITTANY.

Brethren, Plymouth, an outcome of the evangelical movement of the beginning of the 19th century. They advocated a free and simple theology, a religion stripped of all dogma and ritualism. After a very stormy career, during which they were attacked by nearly all the other sects, they en-Exact statistics of their numbers have not been obtained, but it is certain that they are a flourishing body in Europe, America, and India.

Brethren of Common Life, a community formed during the middle ages, and often wrongly described as Reformers before the Reformation. They can be said to have been estab-

fund, and they were to spend their lives amongst the people, converting and teaching them. They were bitterly and teaching them. They were bitterly attacked from inside the Church, but were triumphant over their enemies at the Council of Constance. During the 16th century they began to decline, and they became extinct in the 17th. They are sometimes called the Brethren of Modern Devotion.

Brethren of the Free Spirit, a sect of mystical pantheists who sprang into existence during the 13th century. They were really the outcome of the revival of the Aristotelian movement influenced by Neoplatonism. They were bitterly attacked by the orthodox. after council condemned Council their works, and yet they continued to exist until the 16th century. They probably survived in some of the Protestant mystic sects that sprang

into existence at that time.

Brétigny, a Fr. vil. in the dept. of Eure-et-Loir, 6 m. S.E. by rail from Chartres, and about 20 m. S. of Paris. It is noted as being the scene of a treaty drawn up in 1360, between England and France, by which the former power renounced all claim to the crown of France and liberated the king, John II. France allowed England still to hold a few pos-es-sions and paid a ransom of 3,000,000 crowns for their monarch.
Breton, Cape, see CAPE BRETON

Bréton, Jules Adolphe (1827-1906), a Fr. painter, was born at Courrières, Pas-de-Calais, France. He studied art under de Vigne in Ghent, under Wappers at Antwerp, and under Drölling at Paris. His first pictures nearly all the other sects, they encountered also troubles from within clude 'Saint Piat Preaching in Gaul The sect as originally established split and 'Misery and Despair'—a scene into two sections, and although their of the Revolution of 1848. B., how-speedy overthrow was prophesied, ever, saw that his talent lay in interthery still continue to exist and preting rural life. In 1853 he exhibited flourish. They have done great mishing 'Return of the Harvesters' in sionary work in Europe and India the Salon at Paris, and the 'Little Charac' of Russels. were historical in character, and in-Gleaner' at Brussels. Among his best works are 'Blessing the Fields,' 1857; 'Erecting a Calvary,' 1859; 'Women Weeding,' 1861; and 'The Fountain,' 1872.

Breton, Nicholas (c. 1558-1626), an Eng. poet and pamphleteer, native of Staffordshire, stepson of George Gascoigne. Studied at Oxford, and lished by Gerard Groot about the year wrote pastorals, sonnets, and madlished by Gerard Groot about the year, wrote pastorals, sonnets, and madiable of the interval of the late Bishop Percy has their numbers the famous Thomas a preserved his sonz. The Ballud of Kennis. They did not consist of a Phillida and Corydon, and mentions necessity of clerics, but included in his interlude, An Old Mun's Lesson their numbers many laymen. The B. and a Foung Man's Love. His Paswere free to remain as long as they sionate Shepherd appeared 1604. Englished, or to depart when they liked, land's Helicon, 1600, contains lyrics They were to remain firm as long of his. See Collected Works (edited as they remained B., to their vows by Dr. Grosart, 1877 and 1893), and

Elizabethan Age, 1890.

Breton de los Herreros, Manuel (1796-1873), Spanish dramatist, born at Quel in the prov. of Logrona. He occupied several gov. offices, but lost them owing to his strong Liberal tendencies. His output was extremely great. He wrote about 160 original plays, and many translations. His University of Ofen, and in 1782 a gov. genius lay chiefly in comic power, appointment. His manners and mode Muércle: y Verás, 1837, and La of living were very eccentric. His Escuela del Matrimonio, 1852, are best satires are Almanach der Heiligen

classics. Breton Language and Literature, the Breton language belongs to one of the Celtic dialects, forming a group of the Indo-European family; it is classed with Welsh and Cornish. The Breton dialect is not a patois, since its idiom is exceedingly exact and pre-cise, and the mechanism of its grammar is subject to strict laws based upon the phonetic methods of the Indo-European languages; in Sanskrit alone is this exemplified in a higher degree. Among the many which the original dialects into Breton has, like all oral languages, become subdivided, four stand out, those, viz. of Léon, Cornonailles. Tréguier, and Vannes. The Léonard is the one which remains nearest to the original, and the Celts of Brittany look upon it as their classical dialect. Breton is the language spoken by the Britons who fled to Armorica or Brittany in the 5th and 6th centuries. It is still spoken by the Bretons bretonnants —the Bretons of Lower Brit-tany. Up to the 11th century there existed no monument of Breton literature. A few MSS. containing glosses, which have recently been col-lected in one vol. by J. Loth (Vocabulaire Vieux-Breton), were all this period produced. From the 11th century to modern times there are the Charter of Quimperle, and many mystery plays, such as Le Mystère de Sainte-Nonn and Le Grand Mystère de Jésus. In the 19th century de Jésus. In the 19th century Legonidèc, Brizeux, Luzel, Proux, Le Braz, De la Villemarqué, and other ploneers brought about a literary renaissance. Dramas, lyrics, hagiologies, dictionaries, and vocabularies were produced in great number, and wor received with enthusiasm. The Bretons were reminded again, as they had been reminded in the 17th century by Julien Maunoir, that they were a retien. One of the most remember of the process of the process of the most remember of the process of the most remember of the process of the most remember of the process of the process of the most remember of the process of the p were a nation. One of the most representative works of the modern movement is Deleu Dir ('The Harp of Steel'), by Fanch Jaffrennou. But the Breton genius is best expressed in the oral literature of the anct. bards and story-tellers. Gweznon, Taliez, Mez-zin, or Merlin, and Sulio can still be zin, or Merlin, and Sulio can still be is to be found in a charter of Athelstone recognised in the popular traditions 934, in which he is styled 'Brytaen-

Bullen's Poems, chiefly lyrical, of the which are saturated with the marvellous, the supernatural, the ideal, with stories of adventure and of the sea.

Bretschneider, Heinrich Gottfried von (1739-1810), a Ger. satirist, born at Gera. He attended the Moravian Institute at Elbersdorf and the Gymnasium at Gera. In 1778 he obtained the office of librarian at the Auf. 1788, and Wallers Leben und Sillen, 1793.

Bretschneider, Karl Gottlieb (1776-1848), a Ger. theologian, born at Gersdorf in Saxony. He studied theology at Leipzig, and the penetration of his intellect attracted the attention of F. V. Reinhard, preacher to the court at Dresden, through whose influence he became pastor at Schneeberg in He was appointed general superintendent at Gotha in 1816. B. can hardly be termed a pure rationalist, but he showed decided rationalistic tendencies. His theological works are numerous.

Bretten, a German tn. on the R. Saalbach in the duchy of Baden, about 15 m. from Karlsruhe. Melancthon, the reformer, was born there on Feb. 16, 1497. The Elector Palatine Frederick II. originally had juris-diction over the tn. Pop. c. 4000. Bretts and Scots, Laws of the (Lat.

Leges inder Brettos et Scolos), the name applied to the laws relating to the Celtic tribes of Scotland in the 13th century. The Scots were Celtic tribes in the Highland dists., and the Bretts were the remnant of the Britons occupying the dist. of Strathclyde, or Cumbria. The district of Cumbria was held by the heir to the Scots throne, who was known as the 'Prince of Cumbria.' The Bretts and Scots were conservative in their Celtic traditions and institutions. but in 1305 Edward I. of England or-dained that the usages of the Scots and Bretts be abolished, and no more be used.' The fragments of the laws which remain are similar in many ways to the Brehon Laws of the Irish. The system was an elaborate 'valuation' scheme, fixing the prices or 'cow' at which every man and woman was valued, from the king to the villain or churl. The basis of valuation was a cow-the king was valued at 1000 cows and a churl at 16. Hence was arranged a system of compensation for various injuries and crimes.

Bretwalda was a title used in Anglo-Saxon times. The exact meaning and limitation is not known, but the term

painters. He was the son of a peasant, and received instruction during his youth in painting, afterwards travelling fairly extensively in France and Italy. He became a member of the Academy of Antwerp about the year 1551. His work is distinguished by its humour, and he generally portrays a rustic subject. He died about the year 1570. His son Pieter is known as Hell B., because of the weirdness of the subjects which he usually chose to paint. Another son, Jan, known as Velvet B., is noted for his studies of ctill life and for his land, and see of still life and for his land- and seascapes. He travelled extensively in Italy, living for some time there. He painted parts of the landscapes of some of Rubens' pictures. He gained a considerable reputation as an artist and left a large number of pictures.

and lett a large number of pictures.

Breun, Jean E., Comte de l'Hôpital (1862-1912), portrait painter; gained medals both at the Academy Schools and at the Royal Academy, in 1884, for the best drawing of a figure from life. His chief portraits are 'Adelina Patti,' Countess of Londesborough,' Counter Six Padvers, Puller,' Present Six Padvers, Puller, Present Six Padvers, Puller, Present Six Padvers, General Sir Redvers Buller,' W. G. Grace,' etc.

Breunnerite, a mineral consisting magnesium carbonate, MgCO. together with oxide of iron. It is a variety of magnesite, and is rarely found in the crystalline form.

Breve is a note in music. It has now the greatest time value, being equal to two semibreves. It is written thus sel or [2], and is most common in

church music.

Breve, an old Scotch law term, denoting a writ issued by Chancery ordering a judge to try by jury questions relating to: 1. Inquest (to ascertain heirs); 2. Tutory (appointment of guardians); 3. Idiotry (appointment of guardians for the insane); 4. Terce (recovery of a widow's dower); 5. Division among heirs—portioners.

walda of all the island. According to Palgrave, the explanation is coronations and satisfactory conclutant of 'wielder of Britain.' Kemble considered it to mean 'a wide ruler.' was found to be vicious, because the Breughel, Pieter, a Flemish painter rate of promotion was not adjusted and founder of the family of that according to demand. In 1854 general name, which became famous for Bs. were abolished, and a system of present the great three of a present individual. Bs. was corrapised for disindividual Bs. was organised for distinguished military service. Bs. are not given in the navy. In the United States the system applies to first lieutenants and officers above that rank, but the commission does not entitle the holder to a higher rate of

pay. Breviarium Alaricanum, a collection of Roman law, compiled by the command of Alaric II., King of the Visigoths, in the year A.D. 506. In it are contained sixteen books of the Theodosian Code, the novels of Theodosius II., Valentinian III., Marcian, Majorianus, and Severus; the Institutes of Gaius, five books of the Sententiæ Receptæ by Julius Paulus; thirteen titles of Gregorian Code, two titles of Hermogenian Code, and two titles of Hermogenian Code, and a part of the first book of the Responsa Papiniani. By many people it is thought that Anianus was the composer of this code, and hence it is often called the Breviary of Anianus, but by the Visigoths it was known as 'Lex Romana.' It was only in the 16th century that it received the name of Breviarium, to distinguish it from a later edition that was introduced in the 9th century for the benefit of the Romans in Northern Italy. This B. A. is the only collection of Roman law containing the first five books of the Theodosian Code and the five books of the Sententice Recepta, which has been preserved, and at one time was the only work known, until the discovery of some MS. in a library in Verona.

Breviary (Lat. breviarium) is the

book which contains the offices for the canonical hours in the Roman Catholic Church. Though 'breviary' means 'a summary,' it was probably used because it was 'a compilation' of the various books (Psalms, prayers, etc.) needed in any one service. There are Terce (recovery of a widow's dower);
5. Division among heirs—portioners.
Brevent, a mt. of the Pennine Alps,
Savoy, rising above the valley of Chamonix. Its summit (alt. \$283 ft.) commands a fine prospect of Mont Blanc.
Breves, a Brazilian town situated in the state of Para, in the S. of the island of Marajo. Pop. 13,000.
Brovet, a word used to denote commission given to officers of the British army, of or above the rank of captain, to a higher rank without regard to the number of vacancies there may be in the higher order. Ageneral B. formerly occurred at intervals of five years, but it gradually became confined to occa-

9 p.m., during a great

many saints' days adds much to the monotony of the Little Hours, as it means that whilst fifty psalms are continually recurring, the rest are rarely sung at all. Only in monasteries or other religious associations can men fulfil all the offices of the B. at the appointed hour. It is usual, the appointed noir. It is usual, therefore, in all cathedrals to mass the services together, and to celebrate Matins and Lauds at 8 a.m., the Little Hours at 10 a.m., and Evensong and Compline at 4 p.m. In 1536, a Spaniard, Francis, Cardinal of Quinones, made sweeping reforms in the B., by which he ensured that all the Pealms were read and well and the Psalms were read each week, and the major portion of the Bible each year. Although Rome refused to accept his innovations, it is of exceptional interest to Englishmen, as the prefaces of the Eng. Prayer-book are largely modelled on those of the cardinal, and the daily services of the Eng. Church are little more than condensations of the offices he enjoined. In 1568, however, with the sanction of the Council of Trent, Pope Pius V, imposed the Roman B. on all Latin churches whose breviaries were not chitches whose breviance were not 200 years old. Formerly each bishop was allowed to choose the B. for his own diocese. Except for the Mozarabic B. in use at Toledo, and the Ambrosian that is followed in Milan, the Rom. has effectually suppressed all others. The reformed Fr. B. is now confined to Lyons, as the result of a determined Ultramontane movement during the pontificate of Pius IX. Its disappearance is to be regretted. It did away with the invocation to saints, as historical research had time the antiphons and were faithfully copied from tural text. The B. is divided parts, of which the weaks third, entitled Propium S.

saints, and forms an incomplete summary of church history. A Catholic is not obliged to believe these bio-graphies. The earliest printed Bs. have a high bibliographical interest.

Brewer, John Sherren (1810-79), English historian, born at Norwich. He was the son of a Baptist school-master. In 1833 he graduated with honours in classics at Queen's College. Oxford. He was appointed to the chair of English in King's College, works of Giraldus Cambrensis, 1861. Through the influence of Disraeli, he secured the crown living of Toppesfield, Essex, where he had leisure to continue his scholarly commentary on the records of the reign of Henry VIII.

Brewing, the name given to the preparation of an alcoholic beverage from a farinaceous grain by means of fermentation. Rice, maize, and millet seed are used in various parts of the world for this purpose, but the term is usually understood to denote the

> ·reat dislife าร ย

popular national beverage on the banks of the Nile 3000 years before the Christian era. The mention of beer also occurs in the works of Pliny, the Rom. historian of the first century A.D., but in British literature references to mead and cider are found long before any description of drinks browed from barley. Little information is available about B. in England prior to the Reformation, but an authentic reference to a London association of trade brewers is found in the chronicles of the early part of the 15th century. Private B. was extensively practised by the wealthier classes, and descriptions of the making of the brew in contemporary records show that this must have been one of the most com-plicated arts the Elizabethan housewife had to master. Until compara-tively recent years the butler in a wealthy English family was often an expert brower, but the practice of private B. is now almost extinct, and like many manufactures once carried saints, as historical research had on in the home, B. is now only carried demonstrated the legendary character of their lives, and for the first use of elaborate plant under expert time the artished as a second control of the contr

's short summary es involved in B. e describing the d in greater de-' the barley is first

It contains abstracts of the lives of converted by a process of germination converted by a process of germination into malt (see Malt), which is then steeped in hot water, whereby, by means of a chemical reaction to be described later, the starch contained in the malt is converted into sugar and dextrin. (2) The liquid, now called the 'wort,' is drawn off and boiled with hops (see Hors), which impact a bitter flavour targether with impart a bitter flavour together with preservative properties. (3) The wort is transferred to large vessels and yeast is added, which causes the pro-London, in 1841. He did much valuable research work. He pub. and ed. the Monumenta Franciscana, 1858; converted into alcohol. (4) Finally, Bacon's Opus Terlium and Opus the liquor is drained from suspended Minus, 1859; and a portion of the matter and stored for periods varying

with the variety of beer. In no industry is the condition and chemical composition of the raw materials of greater importance than in the manufacture of beer, and a description of the three substances—barley, water, and hops—which form the basis of the manufacture, will now be given.

Barley.-Grains of barley mainly composed of starch, water, cellulose, and certain albuminoids. Starch, which forms the largest constituent of the grain, is the founda-tion substance of the B. process since it is the source of sugar, alcohol, and dextrin. The varieties of barley (see BARLEY) which are found to yield the brewer the best results are the tworowed and six-rowed varieties, and of these the Chevalier two-rowed variety (so named from its accidental discovery by the Rev. John Chevaller) is the most popular. The valuation of barley is chiefly carried out by an observation of its physical properties, although the use of germinating machines to discover whether the grain will yield good results on the malting floor gives more reliable The grains should be full. large, and of even size, neither immature nor over-ripe, and should be dry and sweet smelling. The appearance of a section cut across the grain gives an idea as to whether there is a good vield of starch or not. The character yield of starch or not. The character of the endosperm can be scientifically examined with the aid of a germinating machine. This is simply a vessel containing water with a perforated plate, in the holes of which the corns to be examined are placed and covered over with sand. After a few days the state of growth produced by germination is observed, and thus a measure of the germinating power of the grain is obtained.

Water.—The characteristic quali-es of beers browed in particular ties of districts are to be attributed very largely to the inorganic compounds present in solution in the water supply of the district. Thus the wellknown Burton ales owe their characteristic qualities largely to the comparatively · ılcium sulphate n the

water of it is necessary for the water used in B. pale ales to contain a large proportion of calcium sulphate, for the produc-tion of black beers it is essential to use water containing a minimum of dissolved salts or containing for the most part only such salts as calcium magnesium acid carbonates which will be precipitated on boiling. The modern brewer, however, is to a certain extent independent of the

diminish the amount of dissolved substances present. Careful analyses of the different kinds of beers and ales have been made, and the percentage composition of the water supply tabulated in each case. Thus a

tabulated in each case. Thus a Burton ale can now be manufactured with a comparatively soft water supply by the addition of calcium sulphate to the water. Conversely a hard water can be used for the B. of black ales after the calcium and magnesium sulphates have been precipitated by boiling with sodium car-

bonate. Hops.—Hops used by brewers are the fruit of the female plant (Humuthe fruit of the female plant (Humu-lus lupulus), consisting of bright yel-lowish coloured cones. The colour of the flowers and the aromatic smell of the hops are qualities which help in the task of valuation. Good hops should feel clammy when handled, although the presence of mould arising from dampness is extremely undesirable. The compounds present in the hops which play a part in the B. process are chiefly tannin, essential oils, resins, and diastase. The essential oils contribute the aromatic flavour while the resins are responsible for the preservative properties and partly for the bitter principle. The bitter taste supplied by the use of hops overcomes the somewhat sickly taste of the malt, and their use helps to avoid the souring of beer by preventing the further fermentation of alcohol into acetic acid. They also help to precipitate nitrogenous mat-ter and hence to elarify the wort in the boiling process.

Manufacture of mall from barley.-The initial treatment of the barley is termed screening, and consists in freeing it from dust and extraneous matter by sifting and cleaning the The prepared grain is then grain. ready for the malting process, where-by it undergoes important changes in constitution, chief of which is the secretion of an enzyme called diastase. The enzymes are a class of substances about the chemical constitution of which little is known, but which possess the property of being able to decompose certain organic compounds such as starch and sugar into simpler substances. There are two methods followed in the malting of barley, the 'floor' method and the 'pneumatic drum' method. In the floor method the barley is first steeped in water for a period of two or three days. It is to be noted that although the water in which the grain is steeped is changed every twenty-four hours, its composition has an effect on the ultimate product of the brew, qualities of his water supply since he and so the nature of the water supply can by artificial treatment add to or for the steeping operation has to be in hea

taken into consideration, as well as: that used in the boiling and mashing processes. During steeping, the grain absorbs the necessary monotonic germination, swells considerably in operation is carried on in cisterns having draining racks at the bottom to After

sitnate building in a dry position, concealed from the sun's rays, and having thick walls so that the temperature can be maintained constant. It is essential that the germinating process should be kept well under control, and should proceed fairly uniformly throughout the material. Heat commences to be evolved as the grain in the middle of a heap germinates, and consequently the heaps are constantly raked over, so that no part of the grain ger-minates quicker than another. The temperature and ventilation of the house are also carefully controlled, the former being kept at about 60° F., and water is occasionally sprayed over the grain. The process of pneumatic malting, which is of over the grain. modern invention, is similar in principle to that just described, the improvement. however, consisting in the fact that, instead of being spread on a floor and raked by hand, the grain is placed in revolving cylinders of such construction that their ventilation and temperature can be controlled. Under the influence of warmth and moisture germination commences within the corn. Carbon dioxide (carbonic acid gas) is given out by the young seed, the albumen inside the grain being consumed and the embryo at the base of the starchy matter commences to grow. The rudiments of the stem, or acrospire, begin to grow after about a day on the malting floor. The process of malting is complete when the acrospire has attained the opposite end from which it sprung. As the acrospire would in the natural course of things shoot forth with the formation of a leaf after this, steps are taken to stop further growth, the internal changes which the malster desires, viz. conversion of part of the starch into sugar and mucilage, having now taken place. The arresting of further growth is performed in the drying kiln, where the malt is spread on a floor above an oven. Moisture is

The system of B. described is that chiefly in use in the United Kingdom. As the different processes of B. consist in the successive treatment of the extract obtained from the raw materials, it will be seen that it is advantageous to make the brewery a fairly high building, so that the liquid can be drawn off after treatment in one vessel and allowed to run into a receptacle on a lower story, where the next operation can be carried out. At the top of the building are placed hoppers containing grist, together with a cistern containing water heated to about 170° F. 'Grist' is the name given by browers to the crushed malt, and is prepared by passing the dried malt between steel rollers. The mash-tuns are placed below the hoppers, but on its way to the mash tun the grist has to pass through the ma is a cylindrica which passes a

ing blades fixed axis. Warm we same time as th of the machine

mash-tun a mixture which has something of the consistency of porridge. The mash-tun is a large iron vessel containing a false bottom, and with a shaft passing through its centre to which are fixed a system of stirrers. Into the bottom of the mash-tun a certain amount of hot water is run. It is in the mash-tun that the enzyme diastase, secreted during the malting process, acts upon the starch of the malt. In the presence of the tepid water the diastase converts the starch into malt sugar or maltose and dextrin, and as excess of the enzyme is present, it is capable of transforming a further quantity of starch, which may be added in the form of unmalted barley, or as is done on the Continent, in the form of potato starch or rice flour. Another important chemical reaction also goes on the mash-tun resulting in the production of soluble albuminoids, which are necessary later on in order that the yeast may ferment the wort properly. The amount of water added and the temperature and consistency of the mash is varied according to the kind of liquor to be brewed and the previous preparation of the malt. Danger of the formation of acetic acid oc emperature is 1 F. After covered the Ilai

on a noor above an oven. Moisture is the first driven off by the application of up and left for two or three hours, a moderate heat, and then the temperature is raised to the neighbour-lood of 170° F., in order that the withering process may be effected.

*Mashing.—The malf is now ready though the false bottom of the tun, to be used in the B. process proper. when the action is complete, practically all the starch having been degraded. The products of the reaction are separated by means of filtration through the false bottom of the tun.

performed a further supply of the has to be guarded against is the pro-liquor, which is now called 'wort,' is duction of acetic and lactic acids. extracted from the remaining solid matter by 'sparging.' Sprinklers supplying hot water are made to revolve inside the mash-tun, whereby the remaining wort is extracted.

Boiling process.—The wort is then run into large boiling coppers, which are situated on the next lower stage of the brewery, and hops are now The function of the hops in preserving and bittering the beer has already been referred to, but in the boiling copper they perform another function in that the tannin matter they contain precipitates excess of albuminoid matter which would otherwise cause trouble later on. The boiling is continued for about two hours, and the liquid is then passed into a draining vessel, where it is freed from remnants of the hops and suspended matter. It is then cooled by means of refrigerators. cooling is resorted to in order to prevent the formation of acetic acid. It is then run into the fermenting

Fermentation.—The initial temperature of fermentation is of the utmost importance, and for different kinds of beer it varies somewhat, the average temperature being about 58° F. The temperature of the fermenting vessel is maintained at the required value by means of an attemperator, a pipe passing through the vessel through which hot or cold vessel through which hot or cold water may be circulated as required. The initial temperature of the wort in the fermenting vessel is called the 'pitching' temperature. If the pitching temperature is too high the fermentation will go beyond control, while if it is too low the test of the hear will be specify. taste of the beer will be spoilt. Yeast is now added, and the fermentation (see FERMENTATION) commences. The yeast cells feed on the sugar present in the wort and rapidly increase in number, large quantities of carbon dioxide being evolved. The quality and freshness of the yeast employed is a matter of great im-portance. The process of fermenta-tion was once thought to be effected by dead matter, but Pasteur showed that it is carried on by the living yeast cell which feeds on the nitrogeneous matter of the wort and liquor has the effect of precipitating breaks up the fermentable sugar any suspended matter. The liquor in contact with glutinous matter forms a frothy head in the fermenting vessel sometimes two feet in height. Rapid propagation of the yeast cells occurs, and hence a large

duction of acetic and lactic acids. which are produced if the yeast has contracted acidity or putrefaction. and which spoil the taste of the beer. The best yeast is obtained from that formed in the B. of porter. amount of yeast to be added depends amount of yeast to be added depends upon the condition of the wort and upon the state of the malt originally used, a malt dried at a high temperature or a 'patent' malt requiring more yeast to be added in the fermenting vat than other varieties. In some breweries the whole of the yeast is added at one time while in others is added at one time, while in others amounts are added at varying periods. As the fermentation proceeds an increasing volume of carbon dioxide is given off, which eventually bursts through the glutinous surface, and after this has taken place the yeast formed at the top of the liquid be-comes more compact. The yeast is then skimmed off in order that the beer may not be contaminated with any putrifying matter. During the process of fermentation, which lasts usually for three or four days, the temperature may rise as much as 20° F., but by means of the attemperature this can be kept within safe limits. It is necessary to prevent the acctous fermentation which would the alcoholic fermentation follow from now taking place, and this is achieved by the process of cleansing. Cleansing.—'Cleansing' is effected by running the beer into a large vessel in the cleansing house. From this vessel it is run into casks which in a large brewery may number many hundreds. The bung-holes of the casks are left open, and the yeast, which is still being formed within the beer works out of the holes gradually, and is collected by means of pipes in a trough. An alternative method of cleansing, much used with pale ales, is to add a quantity of hops to the fermented liquor, which carry down any remaining yeast with them on settling. If the beer still remains muddy in appearance after the cleansing process is completed, re-course is made to the use of 'finings.' 'Finings' are usually made by dissolving a substance called isinglass in sour beer so as to form a mucilage, and a little of this added to the The liquor present into alcohol and carbon is now ready for storing, which should dioxide. The carbon dioxide evolved be done in casks in a cellar where the temperature can be kept low. Mild ales can be sent out to the consumer direct, but pale and bitter ales require at least six weeks storage.

yeast cells occurs, and hence a large Chemistry of brewing.—The chief crop of yeast results, which rises to chemical reactions in the B. process the surface. The great danger which are brought about by means of en-

zymes, a class of compounds to which | reference has already been made. It is of importance in the case of malt The onzymes are albuminoid sub- to know the amount of mait extract stances, little at present being known it will yield and also its diastatic about their constitution. characterised by the pro being able to decompose ce bohydrates into substances

constitution, the decomposi brought about by the addition of a molecule of water, and thus being one of hydrolysis. About the mechanism of this remarkable process little, how-ever, is as yet known. The secretion of the enzyme diastase during the malting of the grain has already been referred to. Diastase attacks the starch in the malt, and converts it partly into dextrin and partly into a sugar called maltose. The chemical equation

 $3C_6H_{10}O_5 + H_2O = 2C_6H_{10}O_5 + C_6H_{12}O_6$ (starch) (water) (dextrin) (sugar)

summarises the facts just stated, although it is probably not a correct statement of the mechanism of the reaction. The boiling of the wort reaction. The boiling of the wort after it has been extracted in the mash-tun prevents this distatic fermather. mentation from proceeding further. During the process of fermentation the sugar thus produced is converted into alcohol. The function of the yeast in the process of fermentation was the subject of an historic controversy between Liebig and Pasteur. Liebig promulgated the theory that "ke yeast

of the nolecules and under the influence of occurs. this disturbance the neighbouring sugar molecules are disrupted. Pasteur showed, however, that yeast is composed of living cells which required oxygen for their existence, and for the carrying on of the fermenting A distinction was for long process. made between the action of enzymes like diastase, which is an amorphous substance, and apparently licless, and that of living organised ferments like yeast. The researches of Buchner, however, have shown that the views of both Liebig and Pasteur were true to a certain extent. Buchner extracted what he called 'expressed yeast juice 'from dead yeast cells, and found that it contained a substance which could set up fermentation by itself, and which he called zymase. It is evident that this substance is an enzyme formed by the living yeast cell, and that it decomposes the sugar when it comes into

Analytical tests used in brewing-They are activity. The first quantity is estiih water and if the filtrate

to a definite volume. From this value of the density it is possible to calculate the amount of malt extract in the sample, since standard researches have been made to determine the alteration in density effected by dissolving 1 gram of malt extract in 100 c. cms. of water. Upon the diastatic capacity of the malt depends its power of converting starch into sugar, and hence its dotermination is a matter of some importance. The method used is to estimate the time taken for the process of saccharification to be completed. It is well known that when a drop of iodine is added to starch solution a distinctive blue colour is produced, which serves as a test either for free iodine or for starch. A sample of the wort is prepared and a drop of iodine solution added to a small quantity of it. The operation is periodically repeated, and when no coloration results it is known that all the starch in solution has been degraded, and the time which has clapsed is a measure of the diastatic capacity of the malt. The analysis of the wort is made in order to determine the amount of fermentable sugar present. This is carried out by means of Fohling's test and polari-meter readings. Fehling's solution is a solution of copper sulphate and Rochelle salt, and when added to a solution of a sugar (other than cane sugar) a bright red precipitate of copper oxide is obtained, and thus a

- titration the is obtained. use of the Both mal-

tose and dextrin give solutions which are said to be optically active, i.e. when a ray of polarised light is passed through them the plane of polarisation is rotated through a certain angle. This remarkable property is always found in the case of substances like the carbohydrates in question, which possess a carbon atom within the molecule that is linked to four other different atoms. By means of the polarimeter the amount of rotation suffered by the plane of polarisation of a ray of polarised light passing through a known length of solution contact with it in the formenting can be determined. Now the amount vessel. The distinction between life- less enzymes and living organised mated by Felling's solution, and ferments has therefore to a large extent been proved to be meaningless.

B:ewing

Varieties of beer .- The two main United Kingdom are ales and porter, the beer being of sp. gr. 1055.

Ales are of two kinds, mild and Consumption of beer in the United Kingdom. tion which goes on in the casts while barrels of beer were made, and the ale is being stored and the consequent formation of carbon dioxide were used, while the corresponding is the source of the refreshing and sparkling qualities which characterise this beverage. In order that of barrels of beer and 50,069,000 bushels terise this beverage. In order that of malt and corn.

See Scimmell, Breveries and Maltham, the place, the presence of accrtain amount ling; Baker, Breving Industry; W. J. when they are stored is necessary. It Breving with Raw Grain, Handy is to ensure this in the benefing of also of fermentation in the brewing of ales. Brewood, a tn. situated in the W. of is kept low, 70° F. being the maxi- the co. of Staffordshire. It is 8½ m. mum temperature. Great care is also from Stafford. Pop. 2948. taken over the skimming process, in order to prevent acetous fermenta-Porter is prepared from dark and patent malts, to which it owes' its colour. As has already been pointed out, it is necessary that the water supply in this case should be comparatively soft, that in the neighbourhood of London and Dublin having been found most suitable for the purpose. Lager beer is a well-known German beer, and is now brewed in England. Its preparation differs from that of ale and porter chiefly in the pitching temperature, the slowness of the fermenting pro-cess, the use of 'bottom' yeast, and the method of storing at a very low temperature. The slow method of fermentation enables the yeast plant to consume the proteid matter present, and consequently there is less chance of souring occurring through putrefaction. In the bottom fermentation mentation process, bottom yeast is employed, a variety so called on the bottom of the tun instead of with the dioptric apparatus, i.e. a rising to the top like the better-method of lighting adopted in lightknown variety. The two varieties are houses in which the illumination is similar in appearance, but the bottom generated by a central lamp, the rays

be obtained. Subtracting this from yeast is composed of smaller cells, the total rotatory power observed, the fermenting tuns are smaller than the rotatory power of the other constituent—the dextrin—is known, and are placed underground, the temperation this value, with the aid of ture being kept low by means of retables, the amount of dextrin present frigerators, which results in the solution of a maximum amount of carbon distributions. destrin and maltose present in the dioxide. The action lasts about wort is thus known. The ratio of twelve days as compared with three destrin to maltose in the wort is a days in the English process. The matter of great importance, since it resulting beverage contains much influences the subsequent fermenta- more carbon dioxide in solution than tion, the presence of too little dextrin ordinary pale ale, while it contains producing a 'thin,' weak beer.

Beer duty.-The duty on beer per

bitter, and their difference in taste is Kingdom.—The production and conduct to the fact that a larger amount of hops has been used in the case of Kingdom have shown a gradual dethe bitter ale than in the case of the cline during the last ten years. The mild. They are manufactured from raising of the taxes on alcoholic pale malt which has not been heated liquors by the Budget of 1909 caused to a high temperature in the malting a considerable fall in the returns for kiln. The process of slow fermenta, that year. In 1899, 37,404,000 tion which goes on in the casks while barrels of beer were made, and

Brewster, Sir David (1781-1868), a Scottish natural philosopher, was born at Jedburgh. His father was rector of the grammar school in that tn. He was sent to Edinburzh University at the age of twelve to study for the Church of Scotland, but his bent was towards natural science. He finished his course in divinity, but never entered into active ministry in the church. The study of the diffraction of light became the ruling passion of his life, and he contributed a series of papers on the results of his investigations to the scientific journal known as Philosophical Transactions. 1802 he became editor of the Edinburgh Magazine, and in 1808 of the Edinburgh Encyclopædia, in which he wrote several important scientific articles. In 1516 he invented the optic toy known as the kaleidoscope. Wheatstone's stereoscope he greatly improved by substituting lenses for the mirrors which the inventor had used to combine the pictures. account of the fact that it remains at his name will be eternally associated

from which are transmuted by an arrangement of lenses surrounding it. The invention of the apparatus has been accredited by some to Fresnels, but B.'s claim is probably stronger. The introduction of the apparatus into British lighthouses was due to the energy and zeal of the scientist. In 1774 B. continued his literary work by becoming, with Robert Jameson, joint-editor of the Edinburgh Philosophical Journal, which succeeded the Edinburgh Magazine. B. split the Edinburgh Magazine. B. split partnership with Jameson in 1824, and started a new journal entitled the Edinburgh Journal of Science. He contributed many valuable scientific articles to the seventh and eighth eds. of the Ency. Brit. He wrote some entertaining Letters on Natural Magic which he addressed to Sir Walter Scott, an entertaining little vol. called More Worlds than One, and a book entitled Martyrs of Science. But his literary fame will rest chiefly on his Memoirs of the Life, Writings, and Discoveries of Sir Isaac Newton-to ch he devoted

Review, the British Association for the Advancement of Science owes its origin. Babbage, and Herschel, were the active shapers of its constitution. 1832 B. was knighted, and in 1838 he was appointed prin, of the colleges of St. Salvador and St. Leonard, St. Andrews. He had many European honours, and was one of the eight foreign associates of the Fr. Institute. In 1859 he was made brin. of Edinburgh University, where he remained till shortly before his death, which took place at Allerly, Melrose. In the old quadrangle of Edinburgh Uni-versity is an imposing statue of this eminent scientist.

Brexia is a genus of Saxifragacere which contains a solitary species. This is an elegant tree with a fine foliage and green flowers in oxillary umbels which are surrounded by bracts on the outside. The leaves are covered with a resinous matter which causes rain to run off them immediately. B. is a native of Madagascar.

Breyell, a tn. of Rhenish Prussia, in the circle of Kempen. Pop. 6000.
Brezowa, a tn. of Hungary in the co. of Neutra, 10 m. N.W. of Leopoldstadt. Pop. 6430.

Brialmont, Henry Alexis (1821-1903), a Belgian general and author, was the son of General Laurent B. In 1843 he passed from the military school at Brussels into the army as sub-lieutenant of engineers. His adrance was rapid. From 1843 to 1874, position, and also very si he rose to the rank of major-general, fortified. The manus. are having been successively lieutenant, leather, silk, and turpentine.

private secretary to General Baron Chazal, War Minister (1847:50), major, lieutenant-colonel (1864), and in 1868 colonel. As major-general he became director of fortifications in the Antwerp dist., and within the the Antwerp dist, and whim the year inspector general of fortifica-tions and of the corps of engineers (1875). It was probably the unpopularity of his elaborate schemes for reformed fortifications at home that induced him to accept an offer from the Roumanian gov, to take over the direction of the works necessary for the country's defence. He actively identified himself with the scheme which raised Bucharest to a first-class fortress, and it was probably at the instance of Austria, a country which feared the growing strategic importance of Bucharest, that the home gov. was persuaded to do without his services in future. In 1884, however, he was reinstated in his former compand of the transmitted for the services. mand of the Antwerp dist. As engineer of the entrenched camp of Antwerp (begun in 1859), he followed the ideals of the polygonal school. Later, however, he trusted to his own upulous preof his in an judgment. Thus in his construction of the fortifications at Namur and Liège he suppressed every artillery position exposed to fire from above, and increased the number of intermediate batteries. Among his many import-

batteries. Among his many important publications may be mentloned
his last, entitled Progrès de la défense
des Elats et de la fortification permenente depuis Vaubon, 1893.
Brian, surnamed Boroimbe (Boru)
(d. 1014), belonged to a tribe of N.
Munster. When his brother, the king
of Munster, died in 976, he ascended
the throne and began his career of
conquest. On subduling Leinster, he
next overcame the Dancs estab, near next overcame the Danes estab. near Dublin, and after killing Malachy, the king of Ireland, washimself recognised as 'ardri,' or ruler of his country.

He was fighting the Danes athis death. Brianchon, Charles Julien (1785-1864), a French mathematician, born at Sèvres. èvres. After having studied at Ecole Polytechnique he was the made, in 1808, lieutenant of artillery. He next became assistant director He next became assistant arrector general of the manuf, of arms in France, and later professor of applied science at the Ecole d'Artillerie. Among his works are: Mémoire sur la poudre à tirer, 1823; Essai chimpte

sur les réactions foudroyantes, 1825. Briançon, a Fr. tn. in the dept. of Houtes Alpes. It is one of the highest towns in Europe, situated 4300 ft. above the level of the sea. It is about 160 m. by rail from Marseilles. It is extremely well defended by its high position, and also very strongly certified. are scent,

stronghold Brigantium. Pop. 7455. Briand, Aristide (b. 1862), F.

Briand

Briand, Aristide (b. 1862), Fr. statesman, sprang from a bourgeois family. He early identified himself with the most advanced thinkers of the day, and after contributing to the anarchist paper, Le Peuple, became joint founder with Jean Jaurès of L'Humanité. At the Labour Congress in Nantes, 1894, he passed a resolu-tion in favour of labour union. In 1902 he entered parliament as a leader of the Socialists. He was very largely responsible for the law of separation of church and state, and took care to see it His acceptance, i: folio of public

Sarrien ministry resulted in his ex-clusion from the Socialist party. Contrary to Jaurès, he held that, where possible, Socialists should support Radicals in measures of reform.

Briansk, a Russian tn. situated on the r. b. of the Desna, and in the gov. of Orel. It trades with Riga and St. Petersburg in grain, hemp and hemp oil, honey, etc.; with Odessa in linen, iron goods, tar, lime, bark, cordage, and cables. There are fine forests of oak near by, which supply the imperial building yards situated in the town. Pop. 25,890.

Brianza, a hilly region of Italy, to the N. of Milan and to the S. of Lake Como. It is much frequented because Briansk, a Russian tn. situated on

Como. It is much frequented because of its charming mt. scenery, its fruitful valleys, and its delightful climate. It is densely populated, and is a favourite resort for the Milanese.

Briare, a Fr. tn. situated on the Loire, in the dept. of Loiret. It stands at the head of the Canal de Briare. It manus, buttons and a fine pottery:

it also trades in coal, wood, and wine. Briareus, also named Ægæon, a giant of Greek mythology. He was one of three sons of Uranus (Heaven) and Gæa (Earth), and possessed a. hundred hands. He assisted Zeus in the battle of the gods against the Titans.

Briar-root is a hard wood obtained from the root-stock of Erica arborea, the common heath-plant of S. France, which is largely used in the manuf. of pipes. Bruyere is the Fr. for health, and the word has no connection with our briar.

Bribery, in Eng. law, has a fourfold signification: (1) The offence of a judge, magistrate, or any person conadministration cerned in the of :

probably on the site of the old Rom. has been imputed to a judge in courts of superior or interior jurisdiction. 'Embracery' is the offence of attempting to influence a jury corruptly to give their verdict in favour of one side by the promise of money or entertainment or by entreatics. The offence is a misdemeanour punishable by fine and imprisonment. A juror may be guilty of this offence if he corruptly influence his fellow-jurors. (2) The receipt or payment of money to a public ministerial officer as an inducement to him to act contrary to his duty. B. in a public ministerial officer is a common law misdemeanour in the person who takes and also in him who offers the bribe. B. with reference to particular classes public officers has become punishable by several acts of parliament. B. of customs officials, officials of the Incustoms officials, officials of the Inland Revenue, and, under the Merchant Shipping Act, of officials of the Board of Trade is punished with heavy penalties. B. of officials invested with powers of local gov. or administering the rates is punishable with imprisonment up to two years, with or without hard labour, together with a heavy fine and incapacity to hold any public office either for a number of years or for life. (3) The giving or receiving of money to progiving or receiving of money to procure votes at parliamentary elections, or elections to public offices of trust. The Corrupt Practices Act, 1854, deals with the offence of corruptly influencing a voter to give his vote in any particular way. The Representation of the People Act, 1867, enacts that a corrupt payment of rates to enable a person to be registered as a voter so as to influence his vote at any future election is B. All kinds of conduct have been held to be B. The conduct need not be dishonest provided there be an intention to influence the mind of the Charitable gifts or an increased scale at Christmas may be B. when act cliffstings may be B. when a certain vote or votes is or are aimed at. A promise of a bribe is B., and so is accepting a bribe even though one does not vote. Where the gift of money or entertainment takes place after an election, the giver is not guilty of B. unless something has happened before the election to raise the hopes of the voter. A mere offer of sale of a vote is not B. (4) Miscellaneous: corrupt presentation to a benefice is B., and buying and selling of public offices is also B. at common law. B. may, under a recent act, be constituted by the taking of a secret commission. The gist of this cerned in the administration common law. B. may, duct a law partice receiving a reward from partices interested for the purpose of act, be constituted by the taking of procuring a partial and favourable a secret commission. The gist of this decision. Since the Revolution in offence is the making of a profit by an 1688 judicial B. has been unknown agent in the course of his employment in England, and since that date no without the knowledge of his principal.

Brice, St., was born at Tours, in

France, probably in the early part of will make 100,000 Bs. When much the 15th century. He became a Fr. prelate, and upon the demise of St. Martin was chosen bishop of Tours. He died at his bp., and later on, Nov. 13 was kept in memory of him. Upon that day in 1002 a horrible massacre of the Danes was committed by King Ethelred's command.

Brick, a mass of clay, usually mixed with sand, fine coal ashes, small coal sifted, or other ingredients, tempered with water, shaped in a mould, and subsequently dried in the sun, and, in most cases, burned or baked in a kiln or a heap or stack called a clamp. The ancients used Bs. both baked and simply dried in the sun. Those found in the ruins of Babylon are among the oldest specimens existing. The Egyptians used sun-dried Bs., and the process of making them is represented in their paintings, some of which are peculiarly interesting from the light they throw upon the scripture narrative of the servitude of the Israelites. The Romans, according to Pliny, began to use Bs. about the decline of the republic; but there are yet remains of a B. building called the temple of the god Redicolus, which is said to have been built on occasion of the retreat of Hannibal. It has been supposed that the Greeks did not use Bs. until after their subjugation to Rome; but passages from Vitruvius and other writers show that Bs. were in use before that period. The Greek names for Bs. were didoron, penta-doron, and tetradoron, terms formed from doron, a hand-breadth, and describing their size as equal to so many hand-breadths. They appear to have been used simply dried, as Vitruvius speaks of their requiring two years to dry, and of the laws of Attica requiring that five years be allowed for that purpose, and because further he warns against using them too new for fear of their shrinking. Roman Bs. were very thin in proportion to their length and breadth, and were well burnt. They resemble tiles more than modern Bs., and are formed of various dimensions, from 7½ in. square and 1½ in. thick, or even smaller, to about 1 ft. 10 in. square and 2½ in. thick. In Decision 100 and 100 are 100 Persia Bs. baked. clamp-bur.

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are, like th

sand is mixed with the clay, forming what is called a mild earth, a smoller proportion of ashes may be used. This quantity requires also the addition of about 15 chaldrons, or, if mild, of about 12 chaldrons of breeze, which is a kind of coarse coal ash, separated by sifting, to aid the burning. The clay and ashes being well mixed by digging, watering, and raking back-wards and forwards with a pronged hoe, the mass is removed in barrows to the pug-mill, which consists of an upright barrel in which a series of strong iron knives and teeth are caused to revolve by the power of a horse walking in a circular path, so as to cut and masticate the clay very thoroughly as it passes from the top of the barrel to an aperture provided for its exit at the bottom. As the clay cozes out of the mill, it is removed with a cuckold, or concave shovel, and covered with sacks to prevent its dry. ing too fast. A person called the feeder takes from the stock of elay thus prepared a piece about the size of a B., covers it with sand, and passes it to the moulder, who throws it with some force into a wooden mould of the size and shape of the B., which mould is previously sanded. Having filled the mould, the moulder cuts off any superfluous clay with a stick kept in a bowl of water by his side, and then removes the back and sides of the mould, after which the soft B. is carefully transferred from the bottom board of the mould to a pallet-board. and, when a sufficient number have been moulded, is conveyed with others to the hacks, which are long level lines raised about 4 in. from the surface of the field, and formed about 2 ft. 6 in. wide. The upper surfaces of the Bs. are previously sanded, and great care is taken to avoid twisting or otherwise injuring their shape in transferring them to the hacks, on which they are laid in two rows, with a little space between each to allow the free circulation of air. One double row being completed, another is put upon them, and this is continued until the Bs. are piled from seven to ton high. In putting them down the nan counts them, and makes a ith a stick in every thousandth

he hacks are covered with straw ght and showery weather, and ne brick-fields sheds are erected hem; but this plan is expensive, etards the drying. When pardried, the Bs. are removed, diagonally, with wider aperand with the bottom Bs.

use by the spring, when fine ashes are brought to the top; and after this added to it in the proportion of one-process, which is called skinlling, fifth ashes to four-fifths clay, or 60 they are removed to the kiln or clamp, chaldrons to 240 cubic yds., which which is a vast pile of Bs., laid to-

the north and south. On this founda-tion the new Bs. are built up in lots or necks, of which the centre one, which is first erected, is vertical, while the others, owing to the concavity of the foundation, have a slight inclina-tion towards it. Small spaces, filled with breeze, are left among the lowest with breeze, are left among the lowest courses of Bs., and flues or live-holes, about the width of a B., and from 6 to 9 ft. apart, are also formed to aid the lighting of the clamp, and filled with dry bavins or wood. When full, the clamp is surrounded by old Bs., or by the driest of those newly made. and a thick layer of breeze is spread on the top. The external Bs. are on the top. coated with a thin plastering of clay: and, if the weather prove wet, the kiln is protected by loos, or hurdles interwoven with rushes. The fire is interwoven with rushes. lighted at the mouths of the flues or live-holes, which are closed when it burns well; and in favourable weather the Bs. will be completely burnt in about twenty-five or thirty days, in the course of which time the cindery matter dispersed through their substance becomes gradually ignited and consumed. Such Bs. as are found to be imperfectly burnt are put into the next clamp to be burned again. Those which are sufficiently burnt are separated, according to quality, into-hard sound stocks; quanty, into—hard sound stocks, place, or inferior soft red Bs.; and burrs or clinkers, which are black-looking masses of vitrified B., of very inferior value. Ordinary Bs. are moulded in this country 10 in. long, 5 in. wide, and 3 in. thick, and are reduced by dwing and burning to reduced by drying and burning to about 9 in. long, 41 in. wide, and a proportionate thickness. Kiln-burnt Bs. are, as their name implies, burnt in a kiln or oven instead of a clamp. and have no ashes mixed with the clay. Marl or malm stocks, which are either baked or burnt, take their name from the marl originally used in them, which has now given place to chalk. Dutch clinkers are a kind of small, hard, yellow Bs. Fire-bricks, also called Windsor Bs., are 1½ in. thick, and of a quality to resist the action of fire. Paving Bs., capping or coping Bs., compass Bs., for wells and circular works. lar works, feather-edged or thin Bs. for the external parts of wooden buildings, and many other varieties of form, size, and quality, are also made. In some cases, a smooth or glazed surface is produced in the burning. Duties were formerly levied on Bs., but have long been repealed. There are two kinds of B. machine one which works with clay in a semi-

gether as closely as possible, on a dry condition and thus saves time in slightly concave foundation of B. drying, and the other which works rubbish, the raised ends of which face with moist clay. In the latter the with moist clay. In the latter the clay is fed into an upright pug-mill which mixes it to the desired consistency and forces it out at the bottom over carrying rollers, so that it passes between two pressing rollers which force it through a die giving it the required size. The block is then cut into Bs. by wires on a frame which is so arranged that the wires can cut rectangularly or at an angle. In the first machine the clay, already very solid, is forced by blades into shape on a revolving table which snape on a revolving table which ejects them under a press. They are then ready for drying. See Potterny. See Searle, Modern Brickmaking; E. Dobson, Bricks and Tiles.

Brickfielders is a term used in Australia to describe a hot wind which blows from the barren, sandy deserts of the interior.

deserts of the interior. Like the strong 'southerly buster,' by which it is followed, it is occasioned by a cyclonic system over the Australian Bight. It is a healthy wind in that its extreme heat and dryness effectually destroys disease bacteria, but it parches vegetation and creates dread-Usually it blows ful dust storms. several days together.

Bricklaying, see BRICKWORK.

Brick-making, see BRICK. Brickwork, or the art of the brick-yer, consists in the judicious layer, arrangement or fitting together of bricks to form a wall or other mass of building, so that they may mutually support each other, and that the strength of each individual brick, as well as that of the mortar or cement by which they are united, may be applied in the most effectual manner to aid the strength of the whole structure. This object, which is termed bonding, is accomplished by breaking or distributing the joints, so that two may never come immediately over each other, and by laying some of the bricks as stretchers, or stretching courses, with their length in the direction of that of the wall, and others, which are called headers, with their length running across, or in the direction of the breadth or thickness of the wall. The bonds in most common use are English bond, acrosisting of alternative leaves. consisting of alternate layers or courses of headers and stretchers; Flemish bond, in which headers and stretchers are laid alternately in the same course, the headers of one course being laid across the middle of the stretchers of the course below it; garden-wall bond, consisting of three stretchers and one header in the same course: and herring-bone bond, which is sometimes used in the cone of very thick walls, and is produced by laying

the bricks at an angle of 45° with the direction of the wall, and reversing the inclination of each successive course. Whenever it is necessary, in order to prevent the perpends, or vertical joints, coming immediately over each other, a half, quarter, or three-quarter brick, or bat, is used to commence or finish Walls, the thickness of a course. which is 9 in. or equal to the length of one brick, are called single-brick: those half that thickness, half-brick; and others brick and a half, two bricks, two bricks and a half, two bricks, two bricks and a half, etc. Arched and groined work requires peculiar care, and in many cases the cutting of the bricks to fit each to its particular bed; and in ordinary house building great neatness is called for in the formation of the flat arches over doorways and windows; but the details of these and other peculiar departments of the bricklayer's art cannot here be entered upon. Some further information on the subject is given under BUILDING. Mortar, the coment usually employed for B., is composed of either grey or white lime (the grey or stone lime being preferable), and river, sea, or road sand, mixed with water in the prosand, mixed with water in the proportion of one part of grey lime to
two and a half of sand, or one of white
or chalk lime to two of sand. The
dipping of the bricks in water as they
are laid makes them adhere more
firmly to the mortar. Putly is a very
fine kind of mortar, made of lime and
water only used for delicate nurroses. water only, used for delicate purposes, and such as the setting of rubbed or gauged arches, where the joints are visible. The foundations of a wall are risible. The foundations of a wall are always laid broader than the super-structure, and the broader courses are termed foo' themselves bein den-walls are

When new walls are joined on to old, it is usual to take out a brick or part of a brick from every alternate corner of the old work, in order to tooth in the new work; and these toothings are left in the first building when it is intended to join new work to it. In many cases, also, strips of iron hooping are laid in the horizontal joints, to afford a further bond or tie between the old and new B. B. is measured by the rod of 272 superficial feet. See Richards, Bricklaying and Brick-culting; F. Walker, Brickwork; Mitchell, Brickwork and Masonry.

Bride (Teutonic word; O. Eng.

with piers or

brid, a term used of a woman about to be married, also during the first year of her married life. With it are associated many other words, such as 'bridge-groom,' 'bride-bell,' now known as 'wedding-bell,' etc. In former times the friends assembled in the church porch, to throw grains of wheat over the bride; later, small cakes were used instead of wheat, which in time developed into the large cake which is the custom of the present day.

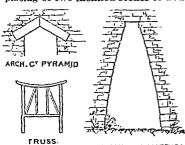
Bride, St., see BRIGIT, ST.
Bridel, Philippe Cyriaque (17571845), Swiss writer, better known as
the 'doyen Bridel,' was successively
pastor at Bûle, Château d'Oex, and
Montreux. As his Poésies helvétiennes
were pub. in 1782, he may justly be
considered the first Vaudois poet. He
is celebrated for his delightful, if not
always accurate, descriptions of his
travels, and especially of the peasants
and his wanderings over the Alps.
His style is refreshingly simple and
unaffected, and all his work glows
with the warmth of patriotic sentiment. His Course de Bâle à Bienne
par les vallees du Jura appeared in
1789, whilst much of his descriptive

in Blackfriars, London, which once was used as a workhouse and home of correction. The name is derived from a well dedicated to St. Bride, and from which the par. of Bridewell is called. The hall and treasurer's house are practically all that is left of the original building.

Bridge, strictly, is a construction which provides a continuous path or road over water, valleys, ravines, or above other roads. The term is applied also to cases in which some part of the B. is temporarily removable, or in which a suspended platform consumption of the passengers or goods across a

o; those carrying water are led aqueducts. There is no reof the earliest B., which protein consisted of a wind thrown tree trunk spanning a stream. Timber being readily worked by primitive tools, was, no doubt, the material first used for the construction of Bs. by art—simple beams on natural piers or supports. The making of artificial supports would, where needed, follow. Herodotus speaks of a B. of this type across the Euphrates at Babylon, consisting of beams resting on stone piers—ascribed to the time of Semiramis, 2230 B.C. The span of a simple beam B. being limited to the length of timber available, or capable of being handled by crude appliances, some form of truss construction would develop in course of time, probably a long time. Trussed construction in which pieces of timber are arranged as a stable frame was known in Egypt in the 20th dynasty 1200 B.C., evidence of which is found

in existing examples of the trussing of the parts of light domestic furniture of that era. It is interesting to note that though the Egyptians at that time understood the use of a truss, and were great builders in masonry, they made little use of the arch at any period, the nearest approach to this of early date is the placing of two inclined stones to abut



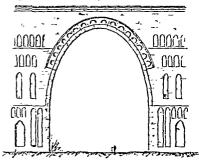
ECYPTIAN

PALENQUE, C'AMERICA.

against walls at their lower ends, and against each other at their upper ends in the middle of the opening, as seen in the Great Pyramid, 4000 B.c. Later they made some use of a true brick arch, for underground work only. In Chaldea, arches of unburnt bricks have been found dating from 4000 B.C., while at Tell-lo, in Babylonia, burnt bricks were adopted for the same purpose. Existing basthe same purpose. reliefs from Assyria, of 880 B.C., show that semicircular arches were used over gateways. The Greeks do not seem to have used the arch, though they represented it upon sculptures; possibly they distrusted it, for as an old Hindu proverb says, 'an arch never sleeps.' Mexican remains, of 1000 B.c., at Palenque show constructions suggestive of the arch, but are in reality corbelled work, the arrangement of the stones plainly indicating the corbel principle. Under Etruscan influence there was built in Rome, 600 B.C., the Cloaca Maxima, having an arched roof of semicircular form.

15 ft. span at its wider end. The
evidence as to an early knowledge of arch-construction is conclusive, though not yet as applied to Bs. An instance, which by the size of its arches implies a yet earlier knowledge of masonry applied to this use, is that of the B. (Pons Milvius) built a short distance from Rome, 100 B.C.,

piers are said to have been 150 ft. high, these were no doubt considerable-Gibbon says over 100 ft.-as masonry arches would probably have been adopted for a more moderate span. The Romans were indeed from this time forward great B. builders, many of their works (if we include aqueducts) are still in use, or at least standing. The semicircular arch was That it was with them the rule. possible to build arches of forms other than this, though perhaps not un-known by the Roman engineers, began only to be appreciated early in the Christian era, first appearing in the architecture of buildings, in archways, and domes. In Persia, the palace of Terbutan had a dome of elliptical form, A.D. 350. The palace of Ctesiphon, near Bagdad, had an arched hall 86 ft. wide of a parabolic figure. Though applied to buildings, these works furnish proof that it was understood the semicircular form need not be slavishly adhered to, though in the construction of masonry Bs. it was long before any other than the circular arch came into use. With the decay of Roman power, and the arts fostered by Roman wealth, the construction of Bs. in a measure lapsed, till the great revival in Italy 1000 years later. The art was not, however, entirely lost, for in 741 an aqueduct of great height, having ten noble pointed arches, each 70 ft. span, was built at Spoleto by Theodoric, King of the Goths, and about the



ARCH_PALACE OF CTESIPHON

arches implies a yet earlier knowledge of masonry applied to this use,
is that of the B. (Pons Milivins) built
a short distance from Rome, 100 B.c.,
which appears to have had spans of
from 50 to 80 ft. Upon Trajan's
column (A.D. 100), there is represented the B., built by him across
the Danube. Great doubt exists as
the Danube. Great doubt exists as
the banube, die of the latter part of the 1the century,
to the width of openings, which were
spanned by timber arches, but as the

pletely successful are

examples as the Trinita ? spans at Florence, by 1566, having a centre are and the Rialto B. by Antonio da Ponte, Venice, which has a segmental arch of 91 ft. span. In Great Britain although the nicest refinements in Gothic art were practised from the advent of that style, in B. building. structures were of rude design, first in timber, later with stone piers of great width, carrying arches, generally of semicircular, segmental, or blunt pointed form. Occasionally, as in old London B. (1200), chapels formed a part of the structure, and in this case, later, houses also were added on either side, between which the traffic made its way. Compared with structures built about the same time in other parts of Europe, London B. was a poor achievement, celebrated rather because of its associations, than as an example of B. building. There were also in this country numerous other Bs. in masonry, constructed, from about the date of London B., generally of small span as to the openings, and, where crossing rivers, ill founded. There was indeed no sensible advance in B. building between the years 1200 and 1750, at about which date old Westminster and Blackfriars Bs. across the Thames, by Labelye and Milne, respectively were commenced. The first of these is of note because of the method of founding the piers, by caissons or coffers, with a bottom which remained as part of the structure, and sides which were detachable; the second is of interest because it appears to be the first instance in this country of the use of the elliptical arch, which gave rise to a widespread discussion between mathespread discussion between mattic-maticians and others, in which Dr. Johnson took part, as to the practi-cability of constructing such an arch, notwithstanding that Ammanatis B. had been standing near 200 years. Both Blackfriars and Westminster Bs. failed eventually by sinking of the piers. They are otherwise noticeable as having been the occasion for the use of centerings of remarkable skill, designed by Kung. A B. of a single arch was about this time being built at Pont-y-Pryd in Wales, of 140 ft. span. by Edwardes, who suc-ceeded after two attempts ending in disaster. Smeaton, who built many Bs., experienced the same difficulty as Labelye and Milne, with his foundations, which led to a grievous failure in the case of the Hexham B. The fault at this time was chiefly the inability to found in water of any depth, perhaps a failure to appreciate the necessity for going deep into the river bed. The best known examples of more recent times which may be built over the Regnitz, near Bamberg.

ondon and Waterloo both fine structures naving emptical arches of granite. that at the centre of London B. being The largest masonry 152 ft. span. arch in this country, and when built, the largest in the world, is that of the Grosvenor B. at Chester, 200 ft. span, built in 1833 by Hartley. This has long since been eclipsed, first in America, by the Cabin John aqueduct B. of 240 ft. span, later by the Luxemberg B. in Germany of 277 ft.,



WITTENCEN



COALBROOKDALE



PLAUNEN



and by the Plaunen B. of 295 ft., built by Leibold in 1903, which now holds the record for width of span. Bs. in timber of any but small dimensions do not seem to have been constructed, except the solitary instance of that near Rome, A.D. 100, till about the middle of the 18th century, when the Wittensen B. of 390 ft. span was built by the brothers Grubenmann. The Schaffhausen B., by the same constructors, had two spans of 193 and 172 ft. respectively. Both these Bs. were of truss design. A B. of timbers arranged to form a somewhat flat arch of 208 ft. span. with stone abutments, was in 1809

Timber is not now used for large spans even where it is plentiful, the liability to decay, and difficulty of adequate repair, making it unsuitable for any but moderate openings, for which it still finds favour in America and Bs. formed of boats, or Australia. AUSTRIA. BS. 10rmed of Docts, or pontoons, connected by timbers, were used in early times. Xerxes crossed the Hellespont by this means in 450 B.C., and there are still in use Bs. of this description. Suspension Bs., in which a floor is hung from, or carried upon, ropes or chains, are said to have been used in China at a remote date and were certainly in use by date, and were certainly in use by the Incas of Peru, up to 200 ft. span, in the 16th century. In this country the first was constructed in 1741 for foot passengers only, having old pit chains suspended between the rocky sides of the river Tees at Middleton. The design of suspension Bs. has received great attention, some of the largest spans being so formed with such improvements as were intro-duced at a later date. One of the earliest Bs. of note of this kind is the Menai Suspension B., 1819, of 570 ft. span, by Telford, and the 570 ft. span, by Telford, and the latest are those crossing the East R. at New York, the Brooklyn, Manhattan, and Williamsburg, having centre spans 1596, 1470, and 1600 ft. respectively. The last named has steel wire cables 181 in. in diameter, dipping 176 ft., and supporting a deck 118 ft. wide. The first attempt to build any sort of metallic arch was that at Lyons in 1755, finally abandoned, and the first carried to completion, the B. at Coalbrookdale, a semicircular cast-iron arch of 100 ft., still standing. It was designed by Pritchard, no doubt assisted signed by Pritchard, no doubt assisted by Wilkinson, an ironmaster who strongly advocated iron for many uses. Thomas Paine, author of the Rights of Man, having endeavoured in 1787 to secure the construction of a cast-iron arched B. over the river Schuylkill, some of the ribs were cast at Rotherham, and the project being abandoned the material was used for the arched B. of 236 ft. span across the river Wear at Sunderland, finished in 1796. Southwark B. over the Thames, by Rennie, completed in 1819, has three spans, the largest being of 240 ft. It is now on the point of being reconstructed in order Southwark B. over the

material disposed with some regard to efficiency, the earliest known examples are due to William Handyside, amples are due to William Handyside, who some years prior to 1847 had used such girders for buildings in St. Petersburg. In B. construction the first serious use of wrought iron was by Fairbairn, for Vignolles, in 1847 in a railway B. of 60 ft. span. This B. had three built up girders of box form, carrying a timber floor. Following this, in 1850, was completed the Britannia Tubular B., having four spans, two of 460 ft., and two of 230 ft. each, the traffic passing through the two tubes, which lie side by side. The engineers responsible side by side. The engineers responsible for the design were Robert Stephenson, Hodgkinson, and Fairbairn, assisted by Clark. This work, with the investigations experimental experimental investigations which preceded it, decided the claims of wrought iron to consideration, but the tubular type of construction has been but little imitated, the chief instance being the B. over the St. Lawrence at Montreal, 7000 ft. long. The box or cellular form of girder construction was soon succeeded by construction was soon succeeded by the simple web plate girder for spans of moderate extent, this type is still very widely adopted, and has of late years been favoured by American engineers for spans up to 120 ft. Bs. having wrought-iron girders of triangulated form, came into use in the middle of the last century, the first notable example being the Newark Dyke B. by Wild, 1852, of 259 ft. span, carrying two lines of railway. The top booms of these girders were The top booms of these girders were made of cast iron, as also the struts, or members in compression, all tie members, including the bottom boom, being of wrought iron. This composite system of construction abandoned in favour of all wrought iron for the girder work, though the simple triangulated design known as the Warren girder was much used, and is still occasionally chosen for moderate spans. In 1859 was constructed Brunel's great B. at Saltash, having two spans of 455 ft. The top boom is of hollow elliptical section, of cast iron, and arched from end to The bottom member of reverse arched form, is of wrought iron, the Thames, by Rennie, completed in arched form, is of wrought iron, the 1819, has three spans, the largest two being braced with vertical and being of 240 ft. It is now on the point of being reconstructed in order to improve the road gradients. Castion in 1823. A property of the country there were being evolved in resist transverse loads (as in timber beams) were first applied to a B. of three small spans by George Stephenson in 1823. By bolting together, and beginning with the Howe and Bollitusian with wrought iron roads man trusses in 1840, were followed. trussing with wrought-iron rods man trusses in 1840, were followed girder spans of east iron were finally by the Pratt truss in 1844, the Fink increased to 100 ft. In wrought iron truss in 1851, and by the Whipple in girder construction, having the 1852. Of these the Whipple and the

100 ft. span being of the last-named type. It is interesting to note that Palladio, about 1660, had proposed and perhaps used trusses, of course in timber, which closely resemble the Pratt type. In the accompanying diagrams indicating the forms of the various trusses, thin lines show members in tension, thick lines those in compression. The largest girder spans yet constructed occur in the St. Louis Municipal B. crossing the which has three spans Mississippi, 668 ft., carrying a double each of deck, with two railway lines and a deep at the centre, reduced towards Inch Garvie, being in the direction of the ends, having Pratt bracing, with the B,'s length 260 ft. apart. The subsidiary members. The piers founded on caisons reaching. founded on caissons reaching rock about 137 ft. below high-water le The total weight of steel-work, including approaches, is 23,200 tons. In each of the girder spans complete there is 4250 tons of steel, exclusive Considerable saving was of piers. effected by the use of nickel-steel in a great part of the trusses. The total cost of the three main spans, with the four supporting piers, is £410,000. The engineers responsible for the design are Messrs. Boller and Hodge. arches of cast iron already dealt with, to arches of wrought iron would seem but a step, yet it was not till 1864 that a wrought-iron arch B. of importance was constructed, when there was built a B. of three spans crossing the Rhine at Coblentz, having openings of 315 ft. The ribs are of open work design rising a part of their height above the road lovel. In 1874 was completed Captain Ead's great B. over the Mississippi at St. Louis. This is of three spans, 502, 520, and 502 ft., the centre arch rising 47 1 ft. The arches are formed of open triangulated ribs, supporting the roadway by vertical columns at the apices of the arch bracing. The general This is one appearance is very fine. of the earliest instances of the use of steel on large B. work, though for small Bs. it had been used in this country in 1861. Other Bs. of importance are the Douro Viaduct by Seyrig of 525

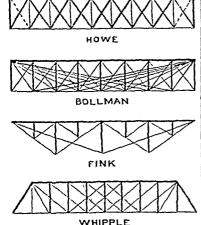
shaped arche ing. The Via

span, having hinges at the crown and at the springing, and the Ningara Falls B., replacing in 1807 an earlier suspension B. The span of this arch, which is hinged at the springings only, is \$40 ft. Cantilever Bs., in which the structure of the B. is

Pratt are still largely used, perhaps projecting ends are connected by an the largest number of girder Bs. above intermediate girder span, were in a crude form known in very early times by the Chinese, being constructed in by the Chinese, being constructed in timber. Of modern examples may be mentioned the Sukkur B., over the river Hooghly, 1889, of \$20 ft. span, carrying a single line of railway, and the Forth B., completed in 1890 by Baker. This B. has two main spans of 1710 ft. each. There are three cantilevers, connected over principal openings by independent girder spans of 350 ft. The length from end to end of the cantilevered part of the B. is 5330 ft. The middle part of each complete cantilever rests

· ow under | construction over the St. Lawrence at Quebec, which is of cantilever form, having a centre span of 1800 ft., the cantilevers resting upon points. and deriving their whole stability from the land anchorages upon the shore. The Blackwell Is. B. by Ingersoll, recently completed, con-sists of five spans of cantilever construction, the second and fourth spans are of 1182 and 984 ft., the fourth centre or island span of 630 ft. being continuous from pier to pier and projecting to the centre of either river span, where it connects to the ends of the shore cantilevers. The end spans of about 460 ft. are the overhanging ends of the shore arms. The soffit of the B. is sensibly straight, the top of the girders following in-differently well the moment curve proper to this form of construction. The four chief types of Bs. for large spans, in which girder, arch, cantilever, or suspension principles appear, may be adopted for spans increasing in the order named. The choice of type is influenced greatly by considera-tions of economy, having regard to peculiarities of site. As types there is not a great deal to choose between them for spans from 300 to 700 ft. Beyond this the last two named are, ^Tor very with r of the large ess apsuspe: parent, and if the abendances are readily effected may be the most economical. In any large B. the amount of moving or live load per foot run of B. has a greater influence on the question of economic type than the type itself on its merits as a type. Opening Bs., in which a part of the structure is temporarily recarried out from either side towards moved to leave a clear opening over the middle of the opening, where the water, or to make a break in the

which some part of the B. turns upon a pivot, the weight perhaps supported by rollers, are hardly more than a century old. This type is largely used, and has been applied to give a free opening of as much as 500 ft., as in the great swing span over the river St. Lawrence, carrying two railroads, a trolley track, a carriage road, and footways. A swing B. carrying 234 it. of the Bridgewater Canal crosses



to the canal ends proper is made by a rubber faced wedge device operated

PRATT

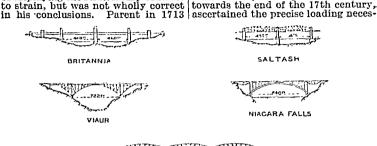
road for purposes of defence, are many hundred years old, and in the carly form consisted of means provided to raise by chains a short ballasted, upon which the opening length of B. floor. But Swing Bs., in part is caused to roll backwards till which were root of the R. the span assumes an upright position, no longer obstructing the waterway. The heaviest opening B. of this kind now in course of construction, at Keadby in Yorkshire, will be of 3000 tons weight. In Traverser Bs. that tons weight. part of the structure crossing the space to be occasionally freed made to roll bodily backwards, telescoping within itself, with suitable mechanical arrangements meet the difficulty presented coincidence of road surface on the moving, and the fixed portions of the B. A structure of this kind crosses the river Dee. Transporter Bs., of which many now exist, have an over-head arrangement of horizontal horizontal girders, or some form of stiffened suspension B., at a sufficient height to give the desired headway, with a platform suspended therefrom, which, accommodating vehicular and pas-senger loads, is drawn across from side to side. Of this kind the Runcorn Transporter B. over the Mersey, by Webster, is an example, having a clear opening of 1000 ft. Bs. used in military operations are constructed chiefly of timber, and are formed of plain or trussed beams, which may be supported by trestles. Cantilever and suspension types are used for larger spans, and for crossing wide rivers are commonly of the floating description. The paramount condition is ability to erect quickly. During the last hundred years founding in water has received great attention; till then piling, where a river bed was soft, or loose, was occasionally resorted to, or, to lay bare a portion of the bed, collerdams were adopted. These were commonly made of double rows of piles, rendered watertight by clay puddle. Later, close piling, grooved and tongued, was used, particularly in the Manchester Ship Canal at Barton; cases where wide obstructions in the this has openings on either side of river were objectionable. Cylinder the central pier of 90 ft. each. The piers of iron or steel are frequently weight of water carried is 760 tons, sunk by excavating in the interior, and the total turning weight 1350 tons. the bottom being open, by mechanical The ends are closed during turning grabs working below water, or the by gates, and water-tight connection cylinder being in clay, by pumping to the canal ends proper is made by out the contained water and working in the dry. Where the strata is by hydraulic rams. In Bascule Bs. permeable the top of such a cylinder the moving portion turns vertically may be closed, and a lock having about a pivot, rising till the opening double doors being provided, the is left clear. The arrangement may interior air is put under pressure just be single-leaf or double, as in the sufficient to exclude the water. This, case of the Tower B. over the Thames, the pneumatic method, is applied also which has a centre opening of 200 ft., to boxes or caissons of considerable with two leaves each of 100 ft. over-size, a recent example being the S. hang to meet at the centre when caisson sunk for the Quebec B., which down. In Rolling Bs., of which the goes down 110 ft. to solid rock. In

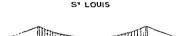
cylinders are much used for B. piers, these being hollow have strong steel curbs around the bottom edge, and sink by their own weight, assisted, it may be, by supplementary loading at the top. The enclosed sand is commonly removed by grabs, and the interior finally filled with concrete. In America caissons are occasionally made of timber, or timber is used for what is known as crib work, in which massive constructions are framed together and loaded with stone to sink and form a solid base. The cost of B. piers in relation to the spans supported by them is important. The more costly it is to construct piers the greater should be the spacing between them for economy. The object generally is to adopt such openings as will make the total cost a minimum. This is achieved when there is equality in the rate of variation due to span, of the cost of the piers and the cost of the superstructure, both reckoned at per foot run of the B., and for girder Bs. is generally, but not of necessity, secured, when the total cost of piers equals the total cost of the main girders. Looking backwards and considering methods of design, it may be said there is no information available as to how the engineers of ancient times developed the capacity to build so well as they did—by what reasoning they reached the forms and proportions adopted. It is known that old peoples had considerable knowledge of astronomy, of geometry, and some other branches of mathematics, and it may be supposed they were acquainted with the laws affecting construction, but this is not probable: what scientific knowledge they had was largely abstract in its nature, and though the state of the constructive arts indicates skill, the skill displayed is not so marked as to postulate advancement in any measure approaching that which now obtains. It is probable that in B. building as in other arts much was learned by trial, by failure. To conclude that the methods used were scientific in the sense now understood, because fine examples of work yet remain, would be to ignore the likelihood of many failures, failures as little foreseen, as any certainty of success. Without knowledge of the computation of stresses, a knowledge of the resistance of materials to stress would be of little use, yet it is reasonable to think some principles of construction may have been perceived and applied in practice. As to the strength of solid beams, it is probable that the fact of a beam's strength increasing at a more rapid rate than the beams and tensile stress in the lower, and

the deep sands of Indian rivers, brick | depth simply, was known long since, though the precise laws governing this may have been unknown. It is an elementary fact to-day that a loose cord, hanging between supports and loaded in a particular manner, will assume a particular form, and that this corresponds to the form which must be given to an arched frame similarly loaded to ensure equilibrium, corresponds, in fact, to the form of an arch which shall be stable, and if of sufficient thickness, safe. Though the ability to calculate, or lay out such a force was recombly. or lay out such a figure was probably wanting, yet the perception of a connection between a loaded cord, and an arch ring similarly loaded may have been perceived, and applied by experiment to solve some of the problems occurring in arch and dome It is inevitable that construction. the nature and effects of tensile, compressive, and transverse stress should have been appreciated in some degree -the skill with which the Egyptians framed together articles of domestic use makes this apparent. Coming to later times, but before the enunciation of any definite principles of statics, the nicety with which the Gothic builders adjusted resistance thrust to, makes it probable enough that some method of reasoning or of experiment must have been applied, together with the exercise of judgment trained by constant use, at a time when routine methods of computation of any nicety were certainly wanting. attempt of l in strength the effort of Gameo in 1638 to formulate the laws governing the transverse strength of rectangular beams. He reached the conclusion that this varied as the breadth, and as the square of the depth, and though right to this extent fell into error in assuming rigidity of material up to the point of rupture, which was thought to occur by yielding to tension from the top edge of the beam downward, placing the neutral axis, as now termed, at the top of the section. It is most likely that Galileo understood that this was not strictly true, but first rough The law stress and strain, i.e. between force applied and yield resulting was discovered by Hooke in 1660, and published 1678. This, the great fundamental principle upon which all modern design may be said to rest, was not at first fully appreciated. Mariotte, resorting to experiment, established that beams under transverse load were subject to compressive stress in the upper part

would occur, arbitrarily assigned this to the centre of gravity of the section, in which he happened to be right. James Bournilli, studying the flexure of beams between 1694-1705, was the first to construct what are known as stress-strain curves, a graphic method of displaying the relationship of stress

perceiving that there must be some it may be said, with the discovery by part between the upper and lower Galileo of the funicular curve, which surfaces at which change of stress has already been referred to as a has already been referred to as a curve of equilibrium in connection with arch structures, but the studies of investigators were for fully a hundred years from Galileo's time confined chiefly to the determination of the loading proper to particular curves, finding in this scope for mathematical analysis of high order. Parent, towards the end of the 17th century.









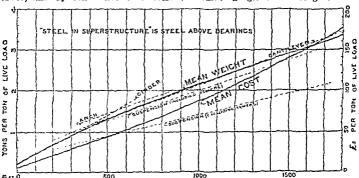


stress above the neutral axis must circular figure, and equal that of contrary kind below, fixed the position of the neutral axis as being coincident with the centre of gravity of the section, and showed that stress varied uniformly from the neutral axis outwards. Coulomb in 1773 reannounced Parent's conclusions, it is supposed with no previous knowledge of those con-clusions. Finally, Saint-Venant gave a complete mathematical analysis of beam phenomena as now understood. The determination of stresses in

perceived that in any beam the total sary to simple stability of the semidefined These studies were catenary curve. supposed to have a bearing upon the correct design of arches, but being pushed to theoretical extremes, with little regard to actual conditions of thick arch construction, were of little value. More practical investigations into the theory of arches were later pursued by La Hire, Coulomb, and Moseley. The resolution of forces has been known as a simple theorem from the time of Galileo, to whom it is due, but Whipple was perhaps the framed and other structures, began, first, in 1846, correctly to analyse the

stresses in a truss. convenient artification of the really principles to the factors of the really who established in the factors of reciprocal figures by which, given the form of a frame (with certain limitations) and the direction and amount of the forces acting upon it, a diagram may be drawn to a definite scale, which gives, by the length of its lines, the amounts of the stresses in the frame; this, with a simple system of lettering the parts for ready identification, due to Bow, renders a graphic solution a comparatively simple matter in cases where the stresses are determinate by static principles. The been made, with a view to ascertain

The first really of the behaviour of materials under stress. The earliest experiments in this direction were crude and unreliable, but tests of value were made Tredgold, Barlow, Fairbairn, Hodgkinson and others: the whole study is barely a hundred years old. In recent years a vast amount of careful experimental work, continued to destruction, has been carried out upon materials as such, and upon the parts of structures, particularly upon strut members, and riveted joints, and upon structures to a large scale. Numerous tests of the clastic deformation of parts of Bs. have also stresses in a frame may, with the same reservation, be determined by an application of the principle of the result. The common assumption in lever, and by other methods. Difficalculating girders having riveted



WEIGHT OF STEEL IN SUPERSTRUCTURE AND COST OF COMPLETE BRIDGE

culties arise in cases where the irame is not statically determinate, where a girder in one length rests upon more than two supports, and in elastic arches with less than three hinges. Various methods are in use for dealing with questions of this character. Without some simplification of the struction which render such computa- and more so in steel, any considerable tions necessary, with the lasting dis- secondary stress which may be deadvantage of possible injury resulting veloped when the structure is new, from displacement of foundations, is in course of time modified by yield

PER TON OF LIVE LOAD CARRIED connections, that the connection is as though hinged, is not strictly satisfactory, and though leading to but little error in frames having slonder members, results in great uncertainty as to the nature and amount of the stresses at the connections, and in the members of a frame, where these are of exceptional breadth. This, though conditions really obtaining, calculations of exceptional breadth. This, though tions of this kind are apt to be intot satisfactory, does not appear in volved or impracticable, and the practice to lead to any inconvenience, tendency is to avoid methods of control it is probable that in wrought iron, dvantage of possible injury resulting reports when the structure is now, from displacement of foundations, is in course of time modified by yield on the other hand, in the case of arches, the disuse of hinged bearings of the metal under strain or detaction described to general stiffness of the interval in no sense projudiced. The structure. It has been said that the effects of variation and reversals of determination of stresses in the stress in structural materials have members of a structure would be been patiently studied, notably by valueless without some knowledge Wohler and Bauschinger, with the compression)—and to stress varying between maxima of differing kinds, are proportional to three, two, and one. Much attention has also been given to the effects of impact, which is now commonly covered by per-centage allowances added to the known live loads, these allowances being based upon experience and judgment rather than upon any strictly rational considerations. the span of Bs. increases, the weight of that part of the structure devoted to carrying the load from side to side increases at a somewhat rapid rate. For small structures, the weight of supporting girders, for instance, may be little compared with the load supported, but in the case of large spans the structure itself may greatly exceed the weight of the load carried. The cost also rises for large spans even more rapidly. To illustrate this, the diagram given displays the weight of steelwork in tons, and the cost in pounds, per ton of live load carried, for various spans up to the limits of present practice. The curves show present practice. broadly correct results based on Ketchum, Highway Bridges; see also actual examples, but it is to be observed that particular cases of small eer, Engineering Record (Am.), Engineering may give results differing consecuting News (Am.), Proceedings Institution of Ciril Engineers and American matter, the practice in such structures | Theory of Structures; Tyrrell, History is so well understood as to give no special trouble, but the labour in special trouble, but the labour in practical Trealize of Bridge Construction in the works of magnitude, or of the special Trealize of Bridge Construction in treme. To illustrate this, particulars | Iron, Steel, and Timber: Husband relating to the Forth B, are to the and Harby, Structural Engineering; point. The work of design and destailing covered about nine years, a king, Bridges; Fairbairn, Britannia great part of this being concurrent and Convay Tubular Bridges; Johnswith the progress of the work. The son, Bryan, and Turneaure, Modern staff of engineers and draughtsmen Framed Structures: Burr and Falk, employed appears to have been about Metallic Bridges; Skinner, Details of twenty, and the cost, exclusive of Bridge Construction; Foster, Wooden chief engineer's fees, about £28,000, Trestle Bridges; Mahan, Civil with rents and general office charges additional: this corresponds to about additional: this corresponds to about 10 shillings per ton of steelwork in the structure. In recent years there has become available for B. construction the composite material, reinforced concrete, in which bars either round or of special section are used in combination with concrete of exceptional density and strength, the chief function of the steel being to resist tensile stresses and of the concrete to

broad result for steel that resistances the Sergolomento B. in Rome of to stress of constant amount—to stress varying between zero and a this way. In France girders of the maximum of one kind (tension or compression)—and to stress varying been constructed, but for Bs. in this between zero and a constructed, but for Bs. in this country it finds little favour, though occasionally used for highway purposes, in which as a rule, heavy and quick moving loads are infrequent. For railway Bs. some doubt exists as to whether the vibration caused by heavy locomotives may not reduce the grip of the concrete upon the steel, which if it occurs would be serious, but there appears no evidence of this in reinforced concrete structures designed with liberal margins, and if this apprehension is not justified, this material would be economical in maintenance, as in first cost. It is not, however, in rail-way work, adaptable to alterations or reconstruction, such as isfrequently necessary with growth of traffic. or for other reasons, as no reinforced concrete structure is fit to carry its full

load till many weeks after being built.

—W. H. THORPE.

Bibliography.—Buck, Skew Arches;
Baker, Long Span Railway Bridges;
Bovey, Theory of Structures; Du
Bols, Strains in Framed Structures. span may give results differing com-siderably from the mean. The design of small Bs. is commonly a simple Society of Civil Engineers and American Market, the practice in such structures of Evidence of Civil Engineers; Morley, matter, the practice in such structures is so well understood as to give no of Bridge Building. Claxton Fidler, special trouble, but the labour in Practical Treatise of Bridge Construc-

Bridge, a card game developed from whist and introduced about 1894. The cards are dealt as in whist, except that the last card is not exposed. The dealer has the privilege of declaring what suit constitutes trumps, and he is influenced by the different scoring values of the various suits. Spades count 2 points for every trick above 6, clubs 4 points, diamonds 6 points, hearts 8 points, offer resistance to compression. Solid and no trumps 12 points. After conbeam Bs. in this material are now sidering his own hand, the dealer may largely used in America, and arches leave the duty of declaring trumps to of considerable size. The Stein Teufen his partner, but no further community. Switzerland, with a span of 259 ft., cation than the bare words 'I leave may be named as a fine example, and it' is allowed. When trumps have

been called, the 'leader,' or opponent | becomes the trump suiton the left of the dealer, may 'double' | clarations which are won on the left of the dealer, may 'double' the value of each trick, or, following him, the third player may exercise that right. In case of a double, the dealer or his partner may 'redouble,' which means that the value of a trick is quadrupled. This again may be doubled, and so on until a maximum of 100 points a trick is reached. After the leader has played his first card, the second player, or 'dummy, lays his hand face upwards on the table and takes no further part in actual play, the dealer playing both hands. Otherwise play proceeds as in whist. The scoring is recorded on paper ruled with two vertical columns crossed by a horizontal line about half The values of tricks above 6 are scored below the line to either side, while above the line are scored honours, chicane, and points for grand and little slam. The honours consist and fittle slam. The nonours consist of ace, king, queen, knave, and ten of the trump suit, and for three or 'simple' honours a side scores the value of 2 tricks; for 4 honours, 4 tricks; for 5 honours, 5 tricks; for 5 honours, 4 in one hand, 8 tricks; for 5 honours in one hand, 9 tricks; for 5 honours in one hand, 10 tricks. In no trumps, aces are counted as honours 3 counting 30 points, 4 counting 40 points, and 4 in one hand 100 points. 'Chicane' means the absence points. 'Chicane' means the absence in one hand of any trump cards; the side possessing the hand scores points sade possessing the hand scores points equivalent to simple honours. If all the tricks are taken, 'grand slam' is recorded, counting 40 points; if all but one are taken, 20 points are scored for 'little slam.' A game is concluded when one side completes 30 points below the line, and a fresh game starts. The first side to win two games is awarded the rubber, for which 100 points are scored in the honour column. The total score is arrived at by adding all points above

and below the line. -. When three persons play, four hands are dealt, by the constitution of dummy's hand. If there are 3 aces, 'no trumps' must be called; otherwise the longest suit constitutes trumps. If two suits are of equal length, the pips are counted,

Only declarations which are won are scored below the line; the opponents score above the line if the declaration is lost, together with honours, etc., as in ordinary B. 50 points are scored in honours for each game, and 50 more for the rubber.

Auction bridge.—In this popular modification for four hands, the dealer must declare the trump and his ability to take a stated number of tricks above 6. The opponent on his left may pass, double, or increase the call. An overcall means a declaration to take tricks of higher total value, but more tricks in a lower suit may constitute an overcall even if the value is only equal; thus, a two-club call takes precedence of a one-heart call. The next player to the left then passes, or doubles, or redoubles, if his partner's call has been doubled, or bids higher still. The bidding or until doubling continues until all are satisfied, when the final declaration satisticd, when the final declaration determines trumps and that partner who originated the call in that suit becomes 'dealer,' and his vis-à-vis, 'dummy.' Doubling does not affect declarations, but only the score. If the declaration is won, the winners score the value of tricks above 6 below the line. If the declaration has been doubled, a hours of 80 is scared been doubled, a bonus of 50 is scored in the honour column, and 50 points for each over-trick. If the winner or his partner has redoubled, the bonus is doubled. If the declaration fails, nothing is scored below the line, but the adversaries score in the honour column 50 for each under-trick, or 100 or 200 if the declaration has been doubled or redoubled. The loss on a one-spade declaration is limited to 100 points. Honours, chicane, slams, etc., are scored as in ordinary B. The tendency of auction B. to force itself always to a no-trump declaration has led to a 'new count,' in which spades count 2, clubs 6, diamonds 7, hearts 8, 'illies' or royal spades 9, no trumps 10. It is seen that a new suit makes persons play, four hands are usual, its appearance, spades counting as the dealer playing his own and its appearance, spades counting as the demmy's. If the dealer 'leaves' the low suit for a defensive call, or as declaration, the trump is determined lillies or royal spades, superior to hearts, at the option of the player. Hearts, at the option of the player, the spades, and later may bid first in spades, and later increase to royal spades. The general result of the new count is to equalise the values of the blacks and reds, and ace counting eleven and other honours to make it possible to overcall even a ten each. If two suits are still equal, strong no-trump declaration. 250 the suit of higher scoring value points are added for rubber.